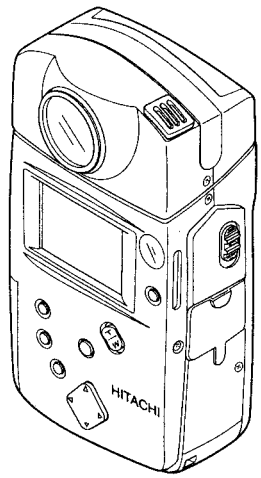
HITACHI

TK | No.6718E

SERVICE MANUAL

MPEGCAM™
MP-EG1A

V19340



CAUTION (LCD Display)

LCD display; the liquid crystal display (LCD) panel is mode by highly precise technology.
More than 99.99% of its picture elements (pixels) are effective, but some (less than 0.01%) may appear as coloured bright dots. This mode not indicate a fault as the LCD panel stretches the limits of current technology.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts have special safety-related characteristics. These are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for a higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual. Electrical components having such features are identified by marking with a ⚠ on the schematics and the parts list in this Service Manual. The use of a substitute replacement component which does not have the same safety characteristics as the HITACHI recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards. Product safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current HITACHI Service Manual. A subscription to, or additional copies for, HITACHI Service Manual may be obtained at a nominal charge from HITACHI SALES CORPORATION.

CAUTION

Lithium battery; danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacturer's instructions.

When replacing the lithium battery it is important to use the same type and connect it correctly.
WARNING: : Lithium batteries contain dangerous chemicals.
: Handle and dispose of with great care.
: Do not throw in a fire.
: Do not short circuit it.
: For disposal place in a plastic bag and put in waste bin.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

MPEG CAMERA

August 1997 Image & Information Media Systems Division, Tokai

CONTENTS

CHAPTER 1 GENERAL INFORMATION

1. Specifications 1-1
2. Terminology for MPEG Camera 1-2
3. MPEG1 Camera Feature Table 1-3
4. Description of Instructions on Use and Functions 1-4

CHAPTER 2 DISASSEMBLY

1. Before Starting Disassembly 2-1
2. Disassembly Method 2-1
   Parts Hierarchy Chart 2-1
   Disassembly Procedure Diagrams 2-2
   2-1. Front Cover, Rear Cover and PC Cover Removal 2-2
   2-2. Camera Front Case, Camera Rear Case and Microphone Unit Removal 2-2
   2-3. SP Board, LEN Board, Lens Cover, O-Ring, Lens Frame, Lens Assembly, Crystal Filter, Light Shading Rubber and Sensor Assembly Removal 2-3
   2-4. Left Cover Assembly, MAIN Board and Rotating Section Assembly Removal 2-3
   2-5. Switch Unit, Bottom Cover Removal 2-4
   2-6. REG Board, Battery Case, LCD Cover, LCS Board and LCD Monitor Removal 2-4

CHAPTER 3 LIST OF EQUIPMENT, JIGS, ETC. AND ELECTRICAL ADJUSTMENT

List of Equipment, Jigs, etc.

1. Equipment and jigs for Adjustment 3-1
2. Extension Cables 3-1
3. Adjustment Charts 3-1
4. Connecting Extension Cables 3-2

Electrical Adjustment

1. Preparations for Starting Adjustment 3-2
2. Connecting Test Equipment and Jigs 3-3
   2-1. Connections 3-3
   2-2. Setting up Test Equipment 3-3
   2-3. Setting up the MP-EG1A 3-3
3. List of Adjustments Required After Major Components are Replaced 3-4
4. Adjustment Procedure 3-4
   4-1. Starting the Adjustment Program 3-4
   4-2. Initial Setting (DATA INITIALIZE) 3-5
   4-3. Electronic Volume Adjustment (ELECTRIC VOLUME) 3-5
   [1] CDS offset adjustment 3-6
   [2] Sampling pulse adjustment 3-6
   4-4. Picture Adjustment (ADJUSTMENT) 3-6
   [1] Iris adjustment 3-7
   [2] Knee adjustment 3-7
   [3] Shutter adjustment 3-8
   [3-A] Shutter adjustment No.1 3-8
   [3-B] Shutter adjustment No.2 3-9
   [4] Matrix adjustment 3-9
   [5] White balance adjustment 3-10
   [6] Chroma gain Adjustment 3-10
   4-5. Spot Noise Adjustment 3-11
   4-6. Backfocus Adjustment 3-12
   4-7. LCD Adjustment 3-13
   [1] PLL adjustment 3-13
   [2] LCD voltage adjustment 3-13
5. Error Messages 3-14

CHAPTER 4 EXPLODED VIEW, REPLACEMENT PARTS LIST

Exploded View

Cabinet Section 4-1

Replacement Parts List

1. Cabinet Section Parts 4-3
   Provided accessories 4-4
2. Electrical Parts 4-5

CHAPTER 5 SCHEMATIC, CIRCUIT BOARD AND BLOCK DIAGRAMS

Schematic and Circuit Board Diagrams

Internal Wiring Diagram 5-1

	Schematic / Circuit Board
SENSOR [SP]	5-3 / 5-33
DIGITAL PROCESS [MAN]	5-5 / 5-39
LENS [LEN]	5-9 / 5-33
CODEC [MAN]	5-11 / 5-39
SH [MAN]	5-13 / 5-39
PCM [MAN]	5-15 / 5-39
AUDIO [MAN]	5-17 / 5-39
SUB CONTROL [LCS]	5-19 / 5-37
LCD DRIVE [LCS]	5-21 / 5-37
SWITCHING REGULATOR [LCS]	5-23 / 5-37
REGULATOR [REG]	5-25 / 5-33
KEY SWITCH [KSW]	5-26 / -

Circuit Voltage Table 5-27
Camera Block Circuit Waveforms 5-8

Block Diagrams

Overall Block Diagram 5-43
CAMERA/VIDEO 5-45
SENSOR DRIVE 5-47
IRIS MOTOR 5-48
ZOOM MOTOR 5-49
KEY FUNCTION 5-50
SYSTEM CONTROL 5-51
CODEC/PCMCIA 5-53
AUDIO 5-55
LCD DRIVE 5-57
POWER 5-59
SOLENOID DRIVE 5-61

CHAPTER 1 GENERAL INFORMATION

1. Specifications

Model	MP-EG1A
Power supply	7.2 V DC
Power consumption	6.5 W
Weight	approx. 385 g (MP-EG1A only) approx. 540 g (with MP-BP1A battery pack and MP-HD260A PC card)
Signal format	NTSC
Compression systems	Moving pictures: MPEG 1 Still picture: Conforming to JPEG Audio: Conforming to MPEG Audio
Battery usable time	approx. 40 minutes (when recording moving pictures continuously at normal temperature)
Recording medium	HP-HD260A PC card
Speaker output	200 mW
Permissible operating temperature/humidity	32-104°F (0-40°C)/80% or less
Image sensor	1/4" CCD Total number of pixels: approx. 390,000 Effective number of pixels: approx. 360,000
Built-in microphone	Monaural
Automatic sensitivity adjustment range	20-100,000 lux
Minimum required illumination	14 lux (moving pictures), 5 lux (still pictures)
Liquid crystal display panel	Image size: 1.8", Number of dots: 61,380
Lens	6x zoom lens (when 2x digital zoom is used concurrently) F2.4 f = 3.6- 10.8mm
Minimum distance recording	Possible as close as 28 cm (at W position of zoom)
Maximum recording time	Moving pictures: approx. 20 minutes Still picture with audio: approx. 4 hours (with MP-HD260A PC card)
Maximum number of recordable still pictures	approx. 3,000 (with MP-HD260A PC card)
External dimensions	83 (W) x 143.5 (H) x 56 (D) mm

- Specifications are subject to change without notice.
- There are pixels which always light on the LCD monitor, but this does not indicate a fault.

2. Terminology for MPEG Camera

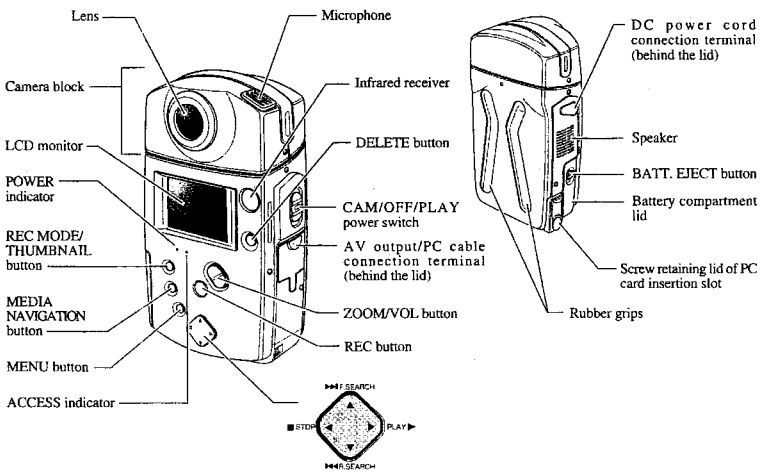
Term	Explanation
Application software	Software which is run by users on an OS. Typical are word processing software, spreadsheet program, painting software, etc.
CD-ROM (Compact Disk Read-Only Memory)	A compact disc which is used as a read-only memory for computer. In most cases, it is used to transfer programs and data.
CPU (Central Processing Unit)	A component that is the center of computer. It receives data from an input device, computes and stores it, then transfers resultant data to an output device. It is also called an MPU (microprocessing unit).
Driver software	Software which provides OS with a specified device. Once installed, user need not be concerned about its use.
ECP (Extended Capabilities Port)	The parallel port of IBM PC/AT compatible machines. It has parallel interface specifications which support bi-directional input/output.
File extension	A name given to control file types on MS-DOS, Windows, etc. It is customarily designated, such as MPG for MPEG files, JPG for JPEG files, etc.
Hard disk	Storage device which is made by coating and evaporating magnetic recording film on cylindrical aluminum substrate, and with which data can be written and read by a magnetic head. Although most hard disks cannot be replaced, some can be, such as those conforming to PCMCIA standard. Hard disk also refers to a fixed magnetic disk, HDD, etc.
Homepage	Introduction for information to be provided on Internet, which can be created using still pictures, audio and moving pictures. This is described in dedicated language, such as HTML (hyper text markup language), etc.
ISA (Industry Standard Architecture)	16-bit bus interface standard used with IBM PC/AT compatible machines.
Internet	More advanced computer network in which computers all over the world are connected to one network.
JPEG (Joint Photographic coding Experts Group)	One of the international standards for color still picture compression system. This system has become popular worldwide and is used to create Internet homepage, etc. The file extension is ".jpg".
MO disk (Magnetic Optical disk)	A disc from/to which data can be read and written repeatedly using the magnet-optical system. The storage capacity is comparatively high, but the write speed is not.
MPEG 1 (Moving Picture Experts Group 1)	One of the international standards f or color moving picture compression system. This is one of the most efficient moving picture compression systems at present. An MPEG 1 decoding hardware or MPEG 1 decoding software is necessary to play back pictures. The file extension is ".mpg".
OS (Operating System)	Software that manages other programs, data, hardware, etc., in order to process the task given to computer.
PC card	A card that can be easily inserted into personal computer without opening its cabinet. PC card is the formal name for cards conforming to the PCMCIA (personal computer memory card international association) standard.
Pentium	The 32-bit CPU developed by Intel Corporation. This is main-stream CPU used in current personal computers.
RAM (Random Access Memory)	The memory, from/to which data can be read and written at random.
Thumbnail	A small still picture, used with many types of image indexing software.
Windows® 95	The OS developed by Microsoft Corporation, very popular for personal computers.

3. MPEG Camera Feature Table

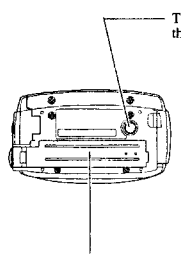
	Item	MP-EG1A	Remarks
General	Power supply	7.2V DC	
	Power consumption (during recording)	6.5W	
	External dimensions (W x H x D mm)	83 x 143.5 x 56	
	Weight	approx. 385 g (MP-EG1A only)	approx. 540 g (with battery back and PC card attached)
	Permissible operating temperature	0°C - 40°C	
	Permissible operating humidity	80% or less	
	Storage temperature	-20° - 60°C	
	Power supply for date/time function	Rechargeable lithium battery	
Video	Storage device	PC card (MP-HD260A)	Conforming to PC card Type 3 slot
	Compression system	Moving picture: MPEG1 Still picture: Conforming to JPEG Audio: Conforming to MPEG Audio	Monaural
	Maximum recording time	Moving picture: approx. 20 minutes Still picture with audio: approx. 4 hours	With the MP-HD260A PC card
	Maximum number of recordable still pictures	approx. 3,000	With the MP-HD260A PC card
	Number of pixels of recording signal	Moving picture: 352 x 240 Still picture: 704 x 480	
Camera	Moving video + audio recording/playback	Yes	
	Still video recording/playback	Yes	
	Still video with audio recording/playback	Yes	Only one still video at start of file
	Still video consecutive recording	Yes	Up to 5 frames without audio
	Time stamp recording	Yes	Recording year, month, day, hour and minute
	Required minimum illumination	14 lux (with moving picture) 5 lux (with still picture)	
	Image sensor	1/4" CCD, total number of pixels: approx. 390,000	
	Lens	Electronic 6X zoom lens, f = 3.6-10.8 mm, F2.4	When 2X digital zoom is used together
Miscellaneous	LCD panel	Image size: 1.8" Number of dots: 61,380	
	Electronic zoom	Yes	
	Auto white balance	Yes	
	Instant zoom	No	
	Program AE	Yes	
	Built-in microphone	Monaural	Nondirectional
	Built-in speaker	Monaural	
	Folder selection	Yes	Folders: 0-5
	File selection	Yes	List display: 6 files, Thumbnail display: 3 files
	File deletion	Yes	In file units, in folder units
	Card free memory display	Yes	For each record mode, displayed in bytes
	Auto play	Yes	Continuous play of displayed files
	Change of file display order	Yes	Change of file play order
	Folder change	Yes	
	File search	Yes	Locating the starts of files immediately before and after the file being played currently
	Backup playback	Yes	
Accessories	AC adapter/charger	MP-AC1E	
	Battery pack	MP-BP1A	
	Infrared remote control	MP-RM1A	
	AV output cable	20-pin monaural cable	
	Hard disk	MP-HD260A	

Names of Each Part

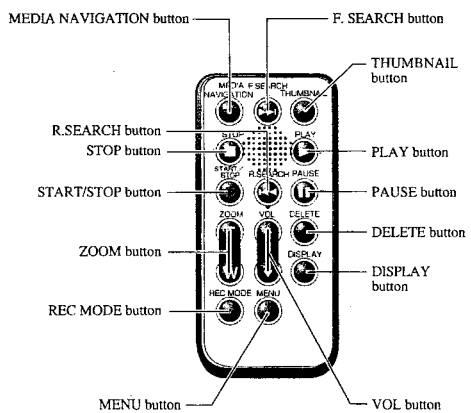
Front View



Bottom View



Remote Control



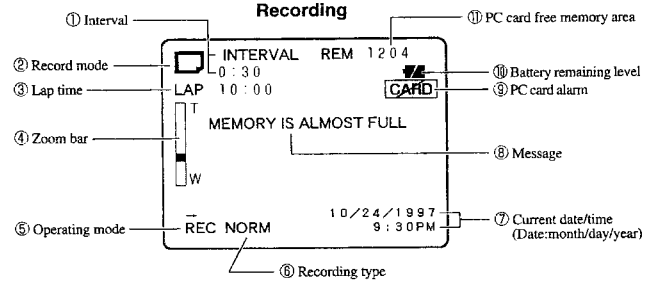
Viewing the On-Screen Display

Various types of information appear on the LCD monitor. Here are meaning of each indication and how to interpret them.

* Note that all the following indications do not appear at the same time.
* Although a colour text appears on the built-in LCD monitor, a white text appears on the TV screen.

[REC MODE]

On-Screen Display during Recording



① **INTERVAL:** Appears during still picture recording mode if the interval has been set (see page 74). This indicates the interval at which still pictures are recorded and can be set to 30 seconds, 1 minute or 5 minutes (see page 32). If this indicator does not appear, normal still picture recording will be engaged.

② **Record mode:** This indicates the current recording file type which can be switched by pressing the REC MODE/THUMBNAIL button. You can select one of four modes:

: Moving picture (MPEG1 Format)
: Still picture (JPEG Format)
: Consecutive recording of still pictures (JPEG Format, 2 pictures/sec. and 5shots)
: Still picture with audio (JPEG Format and MPEG Audio)

③ **Lap time :** This appears when you select moving pictures or still picture with audio, and indicates the elapsed time since the REC button was pressed.

④ **Zoom bar :** This appears when the ZOOM/VOL button is pressed during recording, and indicates how the zoom is engaged in 10 settings from W (wide) to T (tele). The magnification in the optical zoom range is shown in white and that in the digital zoom in yellow.

If zoom is pressed, the zoom bar will be displayed for three seconds even when the indicator "OFF" appears in the on-screen display (see page 78).

⑤ **Operating mode :** This indicates what mode the MP-EG1A is in currently - recording, playback, etc. - with letters and symbols. See "Operating Mode Indicators" (on page 16) for details.

⑥ **Recording type :** This indicates the function of the REC button during recording.

NORM : Recording starts when REC is pressed and stops when it is pressed again.

CLIP : Recording continues while REC is held and stops when it is released.

The REC button function is set to NORM at the factory. You can switch it to CLIP with the menu (see page 72).

⑦ **Current date/time :** The current date and time appear during recording. If incorrect date and time appear, correct them (see page 22).

⑧ **Message :** Appears as required.

⑨ **PC card alarm :** This appears when a PC card is not inserted or non-usable card is inserted.

⑩ **Battery remaining level :** This indicates the battery remaining level with graphics.

: Full charge (lights white)
: Middle level (lights white)
: Low level (flashes white)

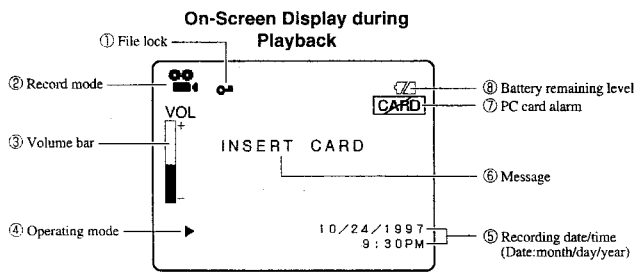
Charge the battery in the low level (see page 18).

Connecting the AC adapter/charger causes the middle indicator to light. ( )

⑪ **PC card free memory area :** This indicates the free memory area on PC card for recording in terms of recording time left or the number of recordable still pictures.

[PLAY MODE]

* Note that all the follwing indications do not light at the same time.
* Although a colour text appears on the built-in LCD monitor, a white text appears on the TV screen.



① **File lock :** Appears when the file being played back is set to the inhibit state of deletion (see page 54).

② **Record mode :** This indicates the type of file which is being played back.

③ **Volume bar :** Appears when the ZOOM/VOL button is pressed during playback and indicates the current volume level.

⑤ **Recording date/time :** This indicates the recording date/time of the file being played back. The displayed date/time cannot be updated during playback.

⑧ **Battery remaining level :** During playback this appears only in the low level graphic flashes.

Operating Mode Indicators

The operating modes are displayed with the following letters and symbols and in colours, indicating the MP-EG1A operations:

Letters/symbols indicated	Colour	Operation
REC	Red	Recording (shooting)
PAUSE	Green	Recording pause
▶	Green	Playback (disappears after 5 seconds)
AUTO▶	Green	Auto play
II	Green	Play pause
▶I	Green	Location of start: Forward search
I◀	Green	Location of start: Reverse search
■	Green	Stop (disappears after 5 seconds)

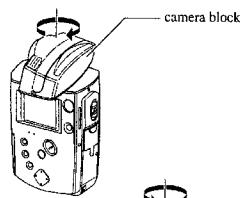
■ *Rotating the Camera Block and Attaching the Sunshade*

The camera block is turned to record an image of yourself when the MP-EG1A has been shipped. Rotate it before recording subjects other than yourself.
If the LCD screen is difficult to see during shooting outdoors, etc., attach the sunshade (provided) to the LCD screen.

Rotating the camera block

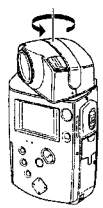
Hold the camera block at both sides and turn it clockwise, with the lens facing forward.

* The camera block cannot be turned over limit. Do not use force, since it could cause malfunctions.



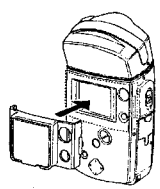
When you want to record yourself or house the MP-EG1A in its carrying case, turn the camera block counterclockwise so that the lens faces you.

* Take care that you do not touch the lens when holding the camera block.

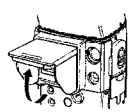


Attaching the sunshade

Align the convex sections on both sides of sunshade with the concave sections on the MP-EG1A, and fit in the sunshade.

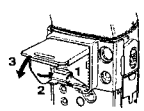


To open the sunshade:



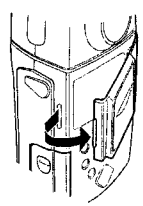
To close the sunshade:

When not using, fold the segments as shown in the figure on right.



Detaching the sunshade

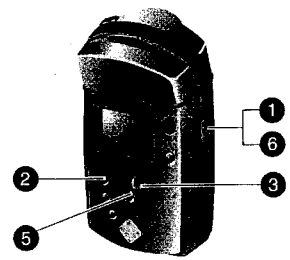
Close the sunshade and release the concave side on the left as shown in the figure on right to detach it.



■ *Recording Moving Pictures*

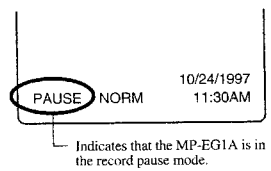
The MP-EG1A records moving pictures and audio.

* The illustrations used in the following text may be different from the actual pictures.



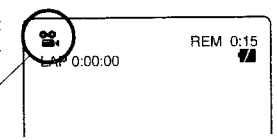
❶ Set the CAM/OFF/PLAY switch to CAM.

Hold down the red button at the centre of the switch and set the switch to CAM. The image from the lens will appear on the LCD monitor, and the MP-EG1A will enter the record pause mode ("PAUSE" will appear).



❷ Check that the "📹" record mode indicator appears.

If the "📹" moving picture record mode indicator does not appear, press the REC MODE/THUMBNAIL button repeatedly until it does.



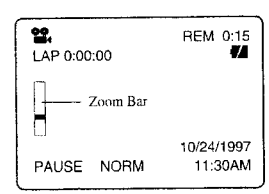
❸ Adjust the image size of subject.

Press the ZOOM/VOL button to adjust the image size of subject. Pressing T (tele) magnifies the image, and pressing W (wide) makes it smaller.

* When the ZOOM/VOL button is pressed, the zoom bar will appear on the left end of the LCD monitor.

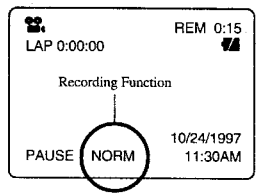
Zooming

The MP-EG1A can zoom in on a subject and enlarge it up to 6 times, 3 times the optical zoom multiplied by 2 times the digital zoom. When the MP-EG1A enters the digital zoom area, the zoom bar will change from white to yellow on the LCD monitor, and the picture will be slightly rough in this area.

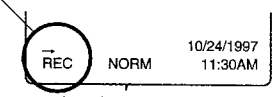


4 Check the recording type.

The way you record varies depending on the recording type. Check to see whether the recording function is set to "NORM" or "CLIP".



5 Record.



- ***When the recording function is set to "NORM" :***
  Press the REC button, the "REC" indicator will appear.
  Recording will start. When the REC button is pressed again, recording of the file will end.
- ***When the recording function is set to "CLIP" :***
  Hold down the REC button.
  Recording will continue while the button is held. When the button is released, recording of the file will end.

Sound is always recorded with moving pictures: You cannot record pictures without sound. During recording, the "REC" indicator lights (red Colour), and " → " indicates on the LCD monitor. When recording is finished, it will change to "PAUSE" (green Colour).

* For switching between NORM and CLIP, see "Switching the Recording Function Type" on page 72.

6 Set the CAM/OFF/PLAY switch to OFF.

After recording is finished, set the switch to OFF to turn power off.

Do not turn power off when the ACCESS indicator is flashing: This could destroy the stored data.

Be sure you first set the switch to OFF even if you want to set it to PLAY immediately. If you don't, the MP-EG1A could malfunction.

Minimum distance recording

The MP-EG1A can record a subject as close as 28 cm. If you bring the MP-EG1A nearer than 28 cm to a subject, or set the zoom in the telephoto direction during minimum distance recording, the image will be out of focus.

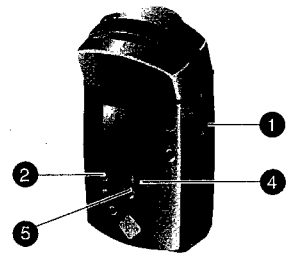
Auto power off (ENERGY SAVE ON)

The MP-EG1A has an "auto power off (in 5 minutes)" function to prevent battery from going dead. When the recording pause mode (during recording) or playback stop mode (during playback) or playback pause mode (during playback) or start Media Navigation (during playback) continues for 5 minutes or more, the MP-EG1A will turn off automatically. Press the PLAY or REC button on the MP-EG1A to turn the MP-EG1A on again. The original operation mode will be restored.

You can disable the auto power off function. See "Switching Auto Power Off Setting" on page 76 for details.

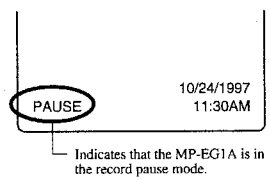
■ *Recording Still Pictures*

* If a still picture has been recorded, the remaining number of storable still pictures (REM) which appears in the on-screen display may not decrease. See "Remaining number indicator of storable still pictures" on page 33



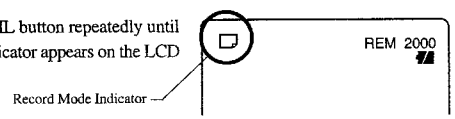
1 Set the CAM/OFF/PLAY switch to CAM.

Hold down the red button at the centre of the switch and set the switch to CAM. The image from the lens will appear on the LCD monitor, and the MP-EG1A will enter the record pause mode ("PAUSE" will appear).



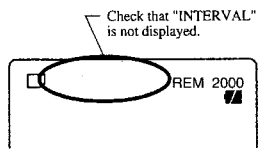
2 Set the record mode indicator to "□".

Press the REC MODE/THUMBNAIL button repeatedly until the "□" still picture record mode indicator appears on the LCD monitor.



3 Check that the interval indicator is off.

If "INTERVAL" appears on the monitor, interval recording will be made at the displayed "INTERVAL".



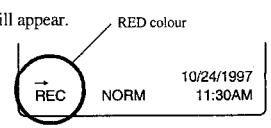
4 Adjust the image size of subject.

Press the ZOOM/VOL button to adjust the image size of subject. Pressing T (tele) magnifies the image, and pressing W (wide) makes it smaller.

* See "Zooming" on page 29 for details of zoom.
* When the ZOOM/VOL button is pressed, the zoom bar will appear on the left end of the LCD monitor.

5 Record.

Press the REC button to start recording. The REC indicator will appear. The image at the moment the button is pressed will be recorded as a still picture.

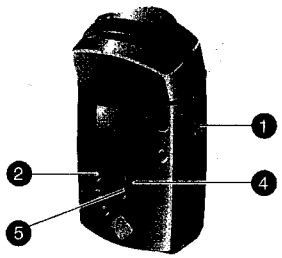


* The shutter speed varies from 1/4 to 1/800 second automatically, according to the brightness of subject. If the subject is dim, the shutter speed will be a maximum of 1/4 second, so be careful of camera movement.

Recording Still Pictures at Intervals

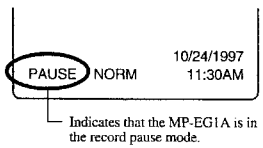
If the interval recording has been set (see page 74), you can automatically record still pictures at a specified interval.

* Check the free memory area on PC card and battery remaining level.
* It is recommended that you use AC power supply.



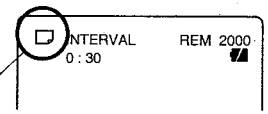
1 Set the CAM/OFF/PLAY switch to CAM.

Hold down the red button at the centre of the switch and set the switch to CAM. The image from the lens will appear on the LCD monitor, and the MP-EG1A will enter the record pause mode ("PAUSE" will appear).



2 Set the record mode indicator to "□".

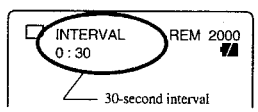
Press the REC MODE/THUMBNAIL button repeatedly until the "□" still picture record mode indicator appears on the LCD monitor.



3 Check the interval.

Check that the INTERVAL setting time (30 seconds, 1 minute or 5 minutes) appears in the on-screen display.
If "INTERVAL" does not appear, the MP-EG1A will not operate at interval (see page 31).

* See "Setting Recording Interval" on page 74 for switching the interval.



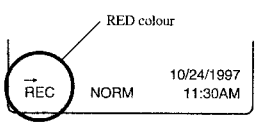
4 Adjust the image size of subject.

Press the ZOOM/VOL button to adjust the image size of subject. Pressing T (tele) magnifies the image, and pressing W (wide) makes it smaller.

* See "Zooming" on page 29 for details of zoom.
* When the ZOOM/VOL button is pressed, the zoom bar will appear on the left end of the LCD monitor.

5 Record.

Press the REC button to start recording.
The image at the moment the button is pressed will be recorded as a still picture, and the interval counter will count down. Each time the interval counter is reset to 0, still pictures will be recorded automatically.
Pressing the REC button again stops interval recording.

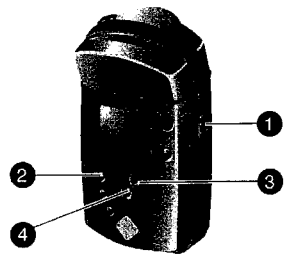


* When the CAM/OFF/PLAY switch is set to OFF, the interval recording will be released.

Recording Consecutive Still Pictures

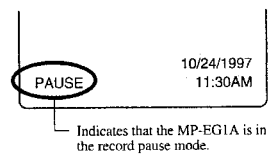
This record mode allows you to automatically record five consecutive still pictures at a speed of about two pictures per second.

* If the brightness of subject changes abruptly during consecutive recording, it could result in overexposure or underexposure.



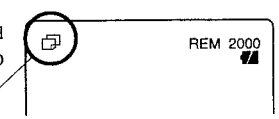
1 Set the CAM/OFF/PLAY switch to CAM.

Hold down the red button at the centre of the switch and set the switch to CAM. The image from the lens will appear on the LCD monitor, and the MP-EG1A will enter the record pause mode ("PAUSE" will appear).



2 Set the record mode indicator to "□".

Press the REC MODE/THUMBNAIL button repeatedly until the "□" consecutive record mode indicator appears on the LCD monitor.



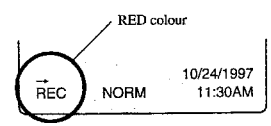
3 Adjust the image size of subject.

Press the ZOOM/VOL button to adjust the image size of subject. Pressing T (tele) magnifies the image, and pressing W (wide) makes it smaller.

* See "Zooming" on page 29 for details of zoom.
* When the ZOOM/VOL button is pressed, the zoom bar will appear on the left end of the LCD monitor.

4 Record.

Hold down the REC button.
Five consecutive still pictures will be recorded at a speed of about two pictures per second, after which recording will stop.
If you release the REC button during consecutive recording, recording will stop at the moment you release the button.



* If you are recording a dark scene or a subject with complicated patterns, the consecutive recording speed may be one picture per second.

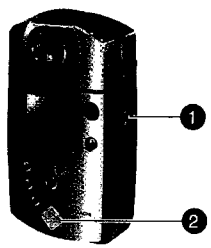
Remaining number indicator of storable still pictures:

If a still picture whose size is little has been recorded, the remaining number indicator may not change. Please understand in advance that this does not indicate a fault.

■ *Playing Back the File Just Recorded*

If you want to play back the file just recorded, perform the following procedure:

* The displayed date and time during playback are fixed to the date and time on which you started recording. The date and time dose not change even as moving picture playback progresses.



1 Set the CAM/OFF/PLAY switch to PLAY.

Hold down the red button at the centre of the switch and set the switch to PLAY. The picture you recorded just before (in case of moving pictures, the start picture of the file) will appear on the LCD monitor.

* If you have played back some file immediately before, the picture played back last will appear.

* If the menu for Media Navigation appears (see page 45), press the MEDIA NAVI GATION button.

2 Press the PLAY button.

The pictures and sound will be played back.

- ***In case of moving picture :***
  Both picture and sound will be played back. When playback reaches the end, the start picture of the file will be displayed and playback will stop.
- ***In case of a still picture :***
  The picture will be displayed as it is.
- ***In case of consecutive still pictures:***
  The last still picture will be displayed.
- ***In case of still picture with audio:***
  The still picture will be displayed and sound will be played back.

Adjusting the volume

When you hear the sound from the built-in speaker, use the ZOOM/VOL button to adjust the volume. Pressing + increases the volume, and pressing - decreases the volume. When this button is pressed, the volume bar will appear on the left end of the LCD monitor.

* When you connect the MP-EG1A to a TV, be sure to adjust the volume on the TV.

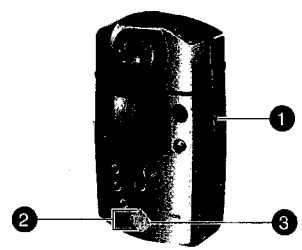
Pausing

Press the REC button to pause the playback of moving pictures or a still picture with audio.

Press the REC button again to resume playback.

■ *Locating Files to be Played by Skipping Start Pictures*

You can search for files you want to play by displaying the start pictures of the files in sequence.



1 Set the CAM/OFF/PLAY switch to PLAY.

Hold down the red button at the centre of the switch and set the switch to PLAY. The picture you recorded last or played last (in case of moving pictures, the start picture of the file) will appear on the LCD monitor.

* If the menu for Media Navigation appears (see page 45), press the MEDIA NAVIGATION button.

2 Press the F.SEARCH or R.SEARCH button to search for the file.

Pressing R.SEARCH once displays the start picture of the file recorded one before the current file. Hold down R.SEARCH to skip files continuously.

Press F.SEARCH when you want to skip files in reserve. If you press R.SEARCH while the oldest file is being displayed, the start picture of the newest file will appear. If you press F.SEARCH while the newest file is being displayed, the start picture of the oldest file will appear.

3 Press the PLAY button.

The pictures and sound (moving picture or still picture with audio) will be played back.

After playback of a file ends, the next file will be played back. To stop playback, press the STOP button.

Searching for files during playback

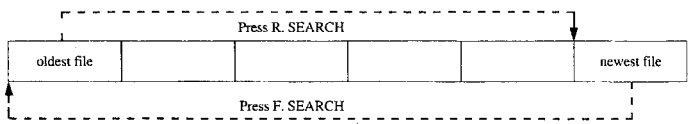
Each time F.SEARCH or R.SEARCH is pressed during file playback, the files are scanned forward or backward one by one, and playback will start from the located file. Holding down the button causes continuous search (visual scanning).

■ *Order of Files to be Played*

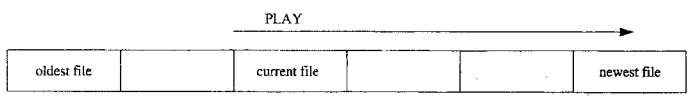
When the file just recorded has played back to its end, playback will stop. If you locate an object file by skipping others and press PLAY, the file will play to its end, and the next files will also play.

The order of files is below:

If you press R.SEARCH while the oldest file is displayed, the start picture of the newest file will appear. If you press F.SEARCH while the newest file is displayed, the start picture of the oldest file will appear.



If you press PLAY when the MP-EG1A is at the current file shown below, the files will play in order as shown by the arrow. When playback reaches the end of the newest file, the start picture of the newest file will be displayed. (Still pictures will show for about three seconds each.)



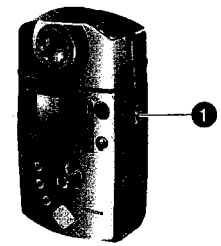
Changing playback order

Arrange the display order of files with Media Navigation (See page 56) and start auto play (see page 58). You can play files regardless of the order of recordings.

■ *Playback Using the Remote Control*

You can use the remote control to operate playback.

* Insert the lithium battery into the remote control in advance. (See page 25)



❶ Set the CAM/OFF/PLAY switch to PLAY.

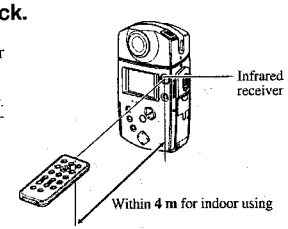
Hold down the red button at the centre of the switch and set the switch to PLAY. The picture you recorded last or played back last (in case of moving pictures, the start picture of the file) will appear on the LCD monitor.

* If the menu for Media Navigation appears (see page 45), press the MEDIA NAVIGATION button.

❷ Use the remote control to operate playback.

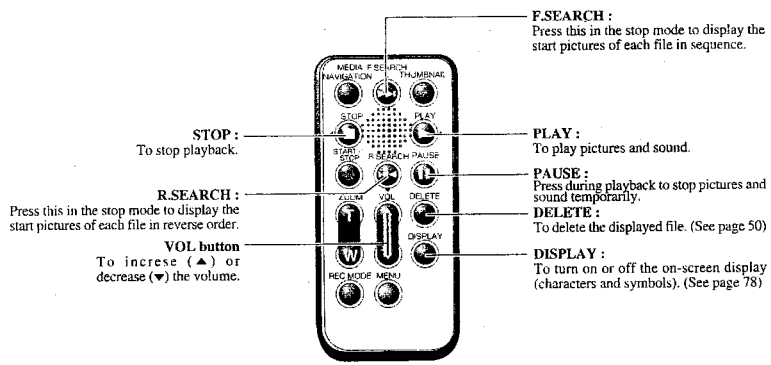
Point the remote control at the MP-EG1A's infrared receiver and perform playback operation (see pages 38-40).

* Be careful that strong light does not strike the infrared receiver. The remote control distance may be extremely small or no operation can be done.



Buttons on the remote control

The following shows the buttons on the remote control used.



CHAPTER 2 DISASSEMBLY

1. Before Starting Disassembly

1) Be sure not to dismantle the lens block.
2) [Removal procedure]
   If a suquence of steps is required when dismantling any component, it is indicated using numbers. Follow the numbers ((1), (2), (3) ...) shown in the illustrations.
   [Reinstallation procedure]
   When otherwise not specified, reinstall each component in the reverse procedure to removal.
3) To avoid breakage of connectors, disconnect flat cables from the connectors by the procedure shown in Fig. 1-1.

1. Release the locks of the connector on the left and right simultaneously.
2. Pull out the flat cable.

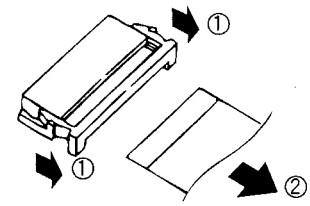


Fig. 1-1

2. Disassembly Method

When replacing defective parts, first refer to "parts hierarchy chart" shown below. This chart shows the procedure for parts removal when replacing defective parts.

[How to use the parts hierarchy chart]
(1) Locate the part to be replaced.
(2) Check the parts in the ranks above the part to be replaced and start by dismantling them.
(3) Replace the defective part and reinstall the parts in the reverse order to that shown in the parts hierarchy chart.

Parts Hierarchy Chart

Parts to remove	Item	Parts to remove	Item	Parts to remove	Item
Front cover Rear cover PC cover	2-1				
Camera front case Camera rear case	2-2	Microphone unit	2-2		
Camera block	2-2	SP board	2-3	Crystal filter Light shading rubber Sensor assembly	2-3
		LEN board Lens cover O-ring Lens frame Lens assembly	2-3		
Left cover assembly MAN board Rotating block	2-4				
Switch unit Bottom cover	2-5				
REG board Battery case	2-6				
LCD cover	2-6	LCS board	2-6	LCD monitor	2-6

Disassembly Procedure Diagrams

Item	Parts to remove
2-1	Front Cover, Rear Cover and PC Cover Removal

[Caution during assembly]
1) Before removing the front cover, open the battery cover.

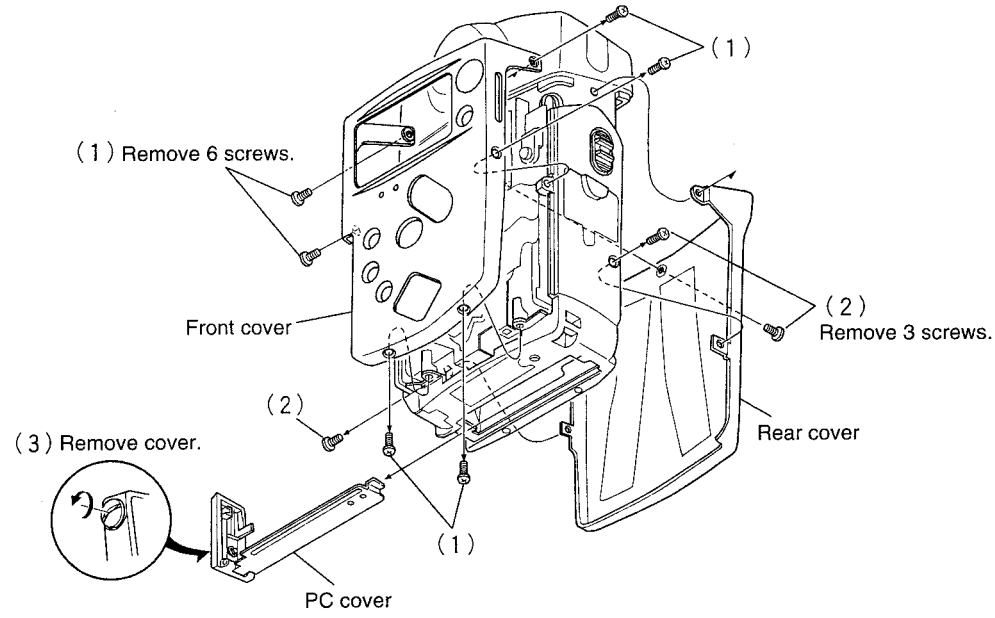


Fig. 2-1

Item	Parts to remove
2-2	Camera Front Case, Camera Rear Case, Microphone Unit and Camera Block Removal

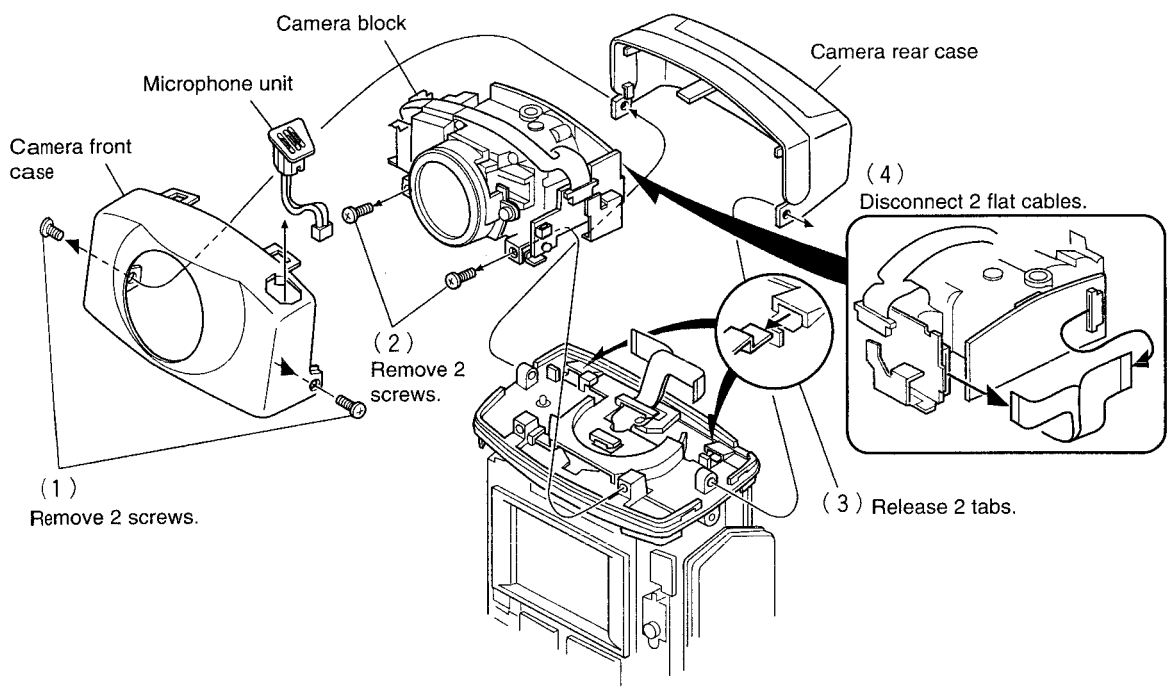


Fig. 2-2

Item	Parts to remove
3-3	SP Board, LEN Board, Lens Cover, O-Ring, Lens Frame, Lens Assembly, Crystal Filter, Light Shading Rubber and Sensor Assembly Removal

[Cautions during disassembly]

1) When the sensor assembly is removed, the crystal filter and light shading rubber can be removed on their own. Be careful not to lose or damage them.
2) Do not dismantle the lens assembly: This could cause malfunctions.

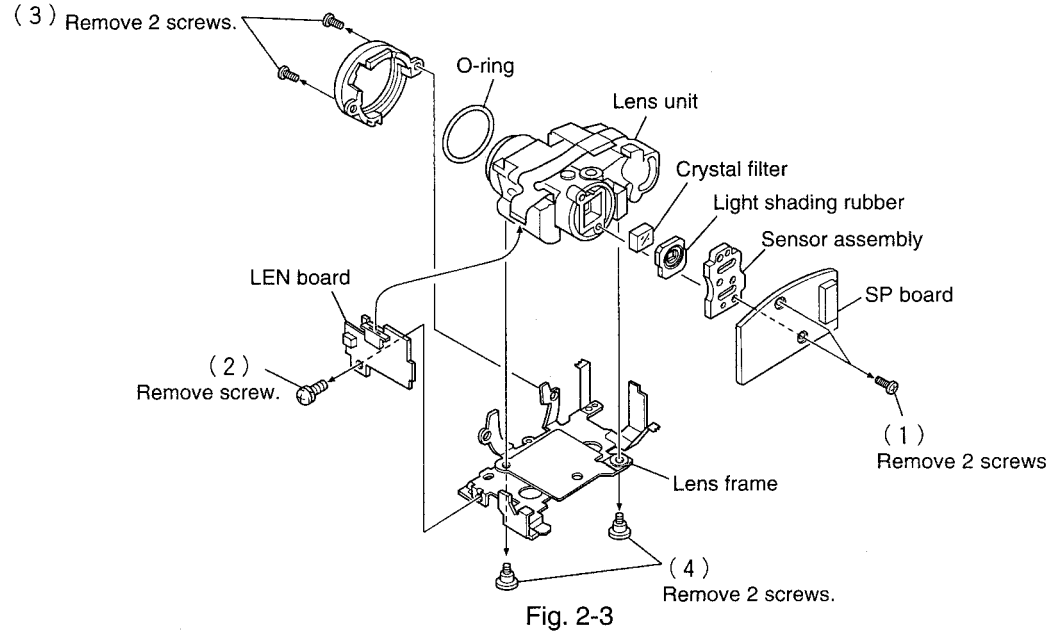


Fig. 2-3

Item	Parts to remove
2-4	Left Cover Assembly, MAN Board and Rotating Block Assembly Removal

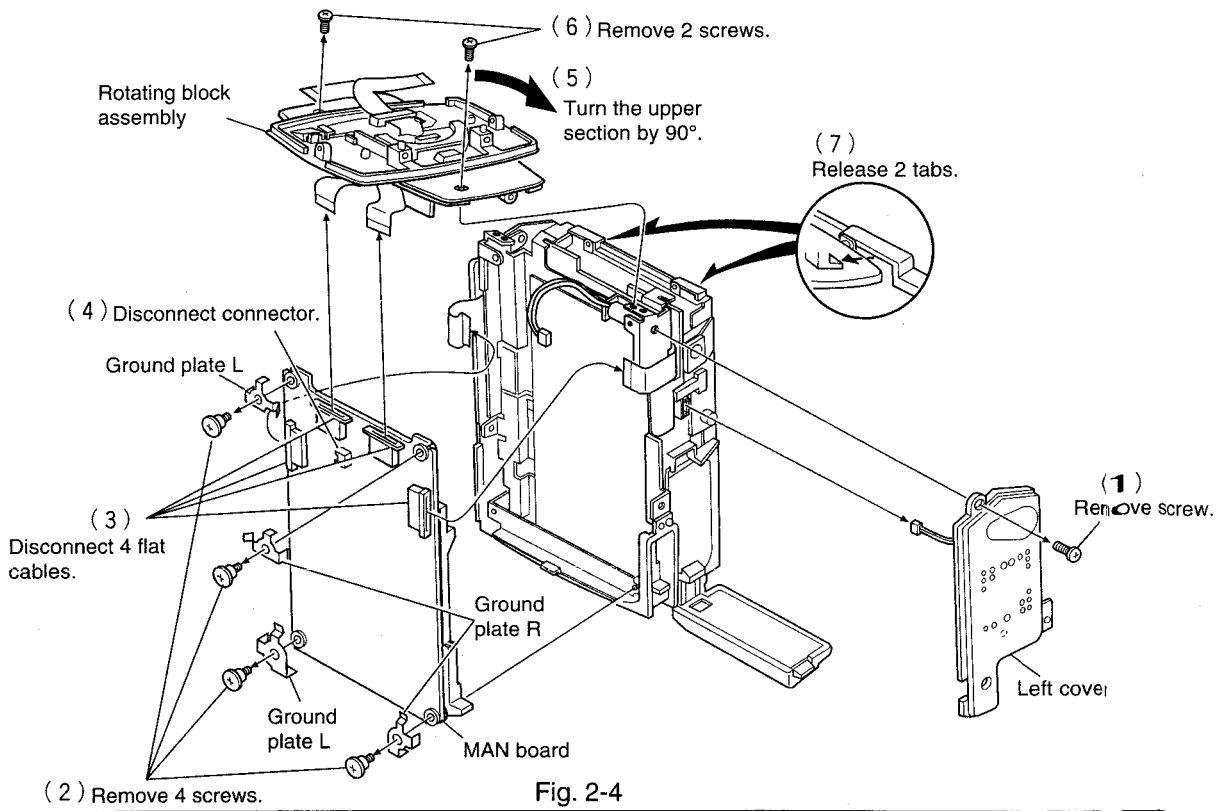


Fig. 2-4

Item	Parts to remove
2-5	Switch Unit and Bottom Cover Removal

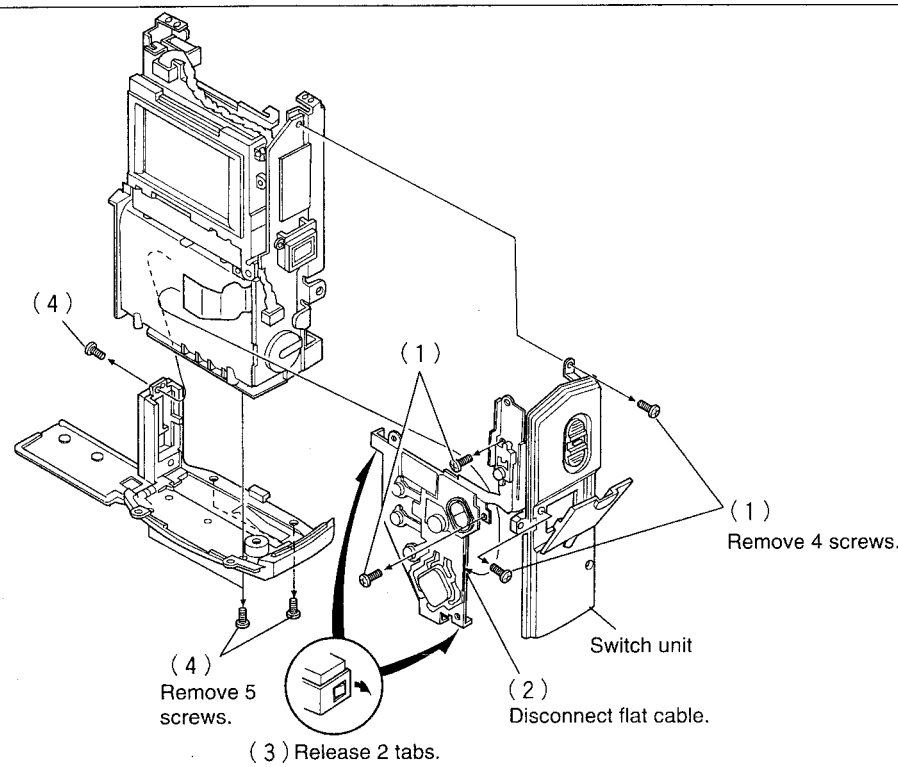


Fig. 2-5

Item	Parts to remove
2-6	REG Board, Battery Case, LCD Cover. LCS Board and LCD Monitor Removal

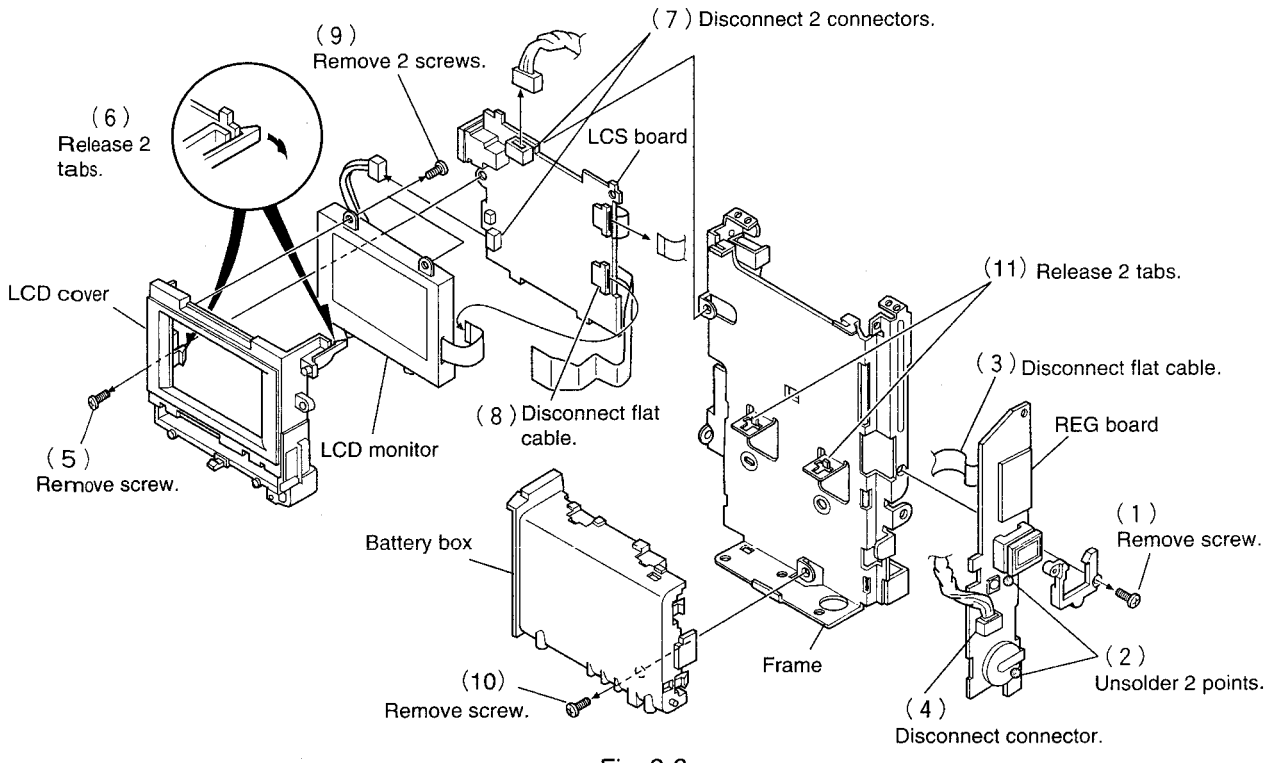


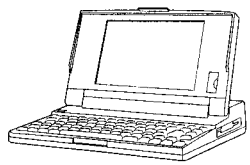
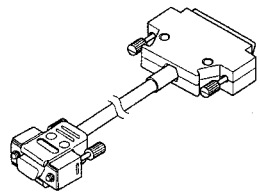
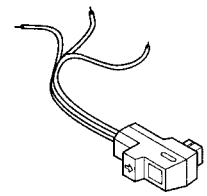
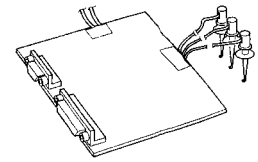
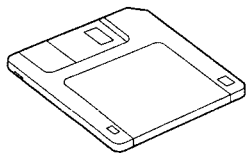
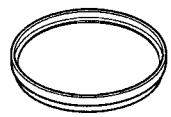
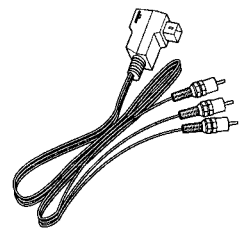
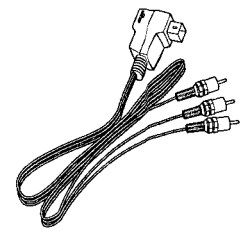
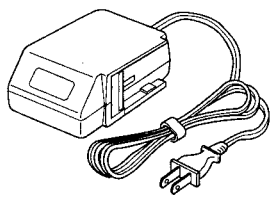
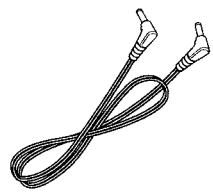
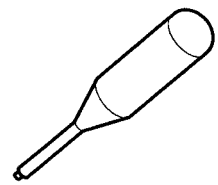
Fig. 2-6

CHAPTER 3 LIST OF EQUIPMENT, JIGS, ETC. AND ELECTRICAL ADJUSTMENT

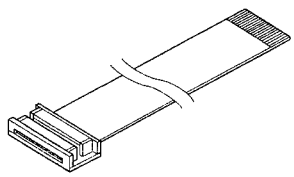
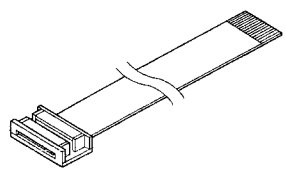
List of Equipment, Jigs, etc.

1. Equipment and jigs for adjustment

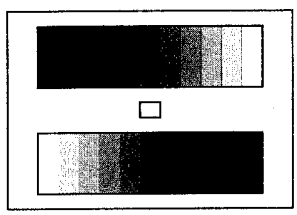
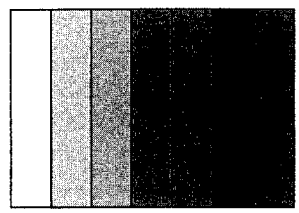
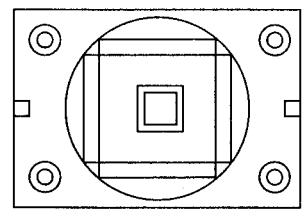
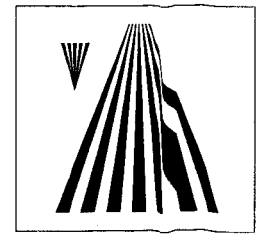
[●]: Newly assigned jigs, [★]: Generally available,
[◎]: Provided accessories, [◆]: Optional

1. Personal computer [★] 	2. RS-232C cable [★] (D-SUB 9-pin/25-pin) 	3. DSP AV output jig No.7099456 	4. DSP interface jig No.7099448 
5. Adjustment floppy disk[●] No. 7069190 	6. C12 color temperature conversion filter No.7099369 	7. AV output cable [◎] 	8. AV input cable [◆] 
9. AC adapter/charger [◎] 	10. DC power cord [◎] 	11. Backfocus adjustment driver No.7099205 	

2. Extension Cables

1. 30-pin extension cable[●] No. JP21551 	2. 22-pin extension cable[●] No. JP21561 		

3. Adjustment Charts

1. Grayscale chart 	2. Color bar chart 	3. Resolution chart 	4. Backfocus chart 

4. Connecting Extension Cables

The following diagram shows the sections where the extension cables shown in item 2 above are to be connected:

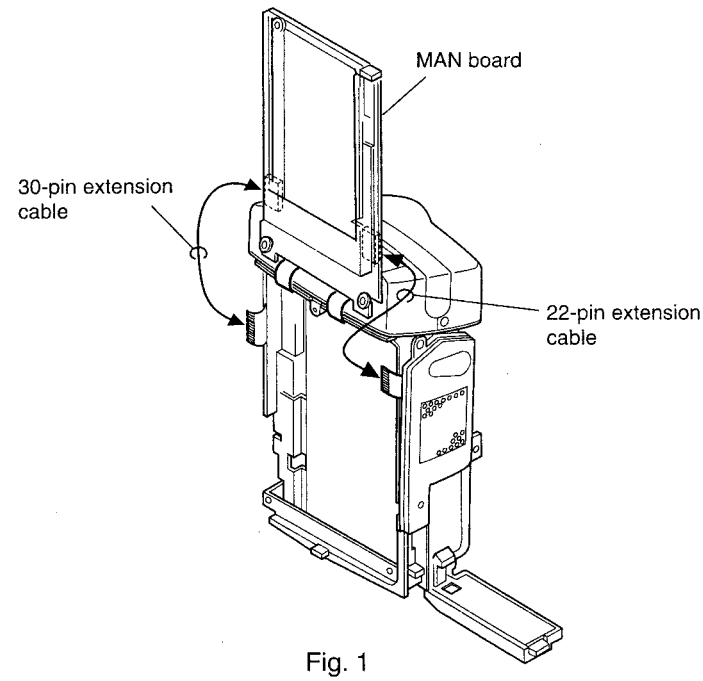


Fig. 1

Electrical Adjustment

1. Preparations for Starting Adjustment

■ Test equipment and charts necessary for adjustment

1) Dual-trace oscilloscope with at least 10MHz bandwidth and 10:1 probe
2) Vectorscope
3) Digital DC voltmeter (DVM)
4) Monitor TV
5) 3100 K light box
6) DC power supply (5V/1A)
7) Bulb-type fluorescent lamp (equivalent to 100 W)
8) Grayscale chart
9) Color bar chart
10) Resolution chart
11) Backfocus chart

■ Setup for test equipment and cautions

1) If necessary, remove dirt from fluorescent lamp and box panel of light box. (If the fluorescent lamp dims or flickers, replace it.)
2) Use a 10:1 oscilloscope probe.
3) Synchronize the oscilloscope internally.
4) Set the oscilloscope time axis to 10 μs/div.
5) When measuring the video signal at the video output jack on the oscilloscope, terminate the jack with a 75 ohm resistor. (If termination resistor is not available, connect a monitor TV to the jack.)

2. Connecting Test Equipment and Jigs

2-1. Connections

Connect the MP-EG1A, test equipment and jigs as shown in Fig. 2.

1) Mount the MP-EG1A on a stable object such as a tripod.
2) Connect the MP-AC1A AC adapter (provided) to the MP-EG1A via the DC power cord to supply power to it.
3) Connect a DSP AV output jig to the MP-EG1A's AV output jack, and then connect the AV output cable (provided) to the DSP output jig.
4) Connect the AV output cable to a monitor TV or an oscilloscope.
5) Connect the DSP AV output jig to a DSP interface jig, and use an RS-232C cable to connect the DSP interface jig to a personal computer.
6) Connect a DC power supply (DC 5V/1A) to the DSP interface jig.
7) To adjust the LCD, disconnect the DSP AV output jig and connect an AV input cable.

2-2. Setting up Test Equipment

1) Set the distance from the MP-EG1A (lens surface) to the chart (light box) at 65 cm.
2) Point the MPEG camera at the chart so as to fill the monitor screen.

2-3. Setting up the MP-EG1A

1) Set the power switch to "CAM".
2) Set the LCD display to "OFF".
3) **Specify ENERGY SAVE OFF on the initial setting menu of the MP-EG1A.**

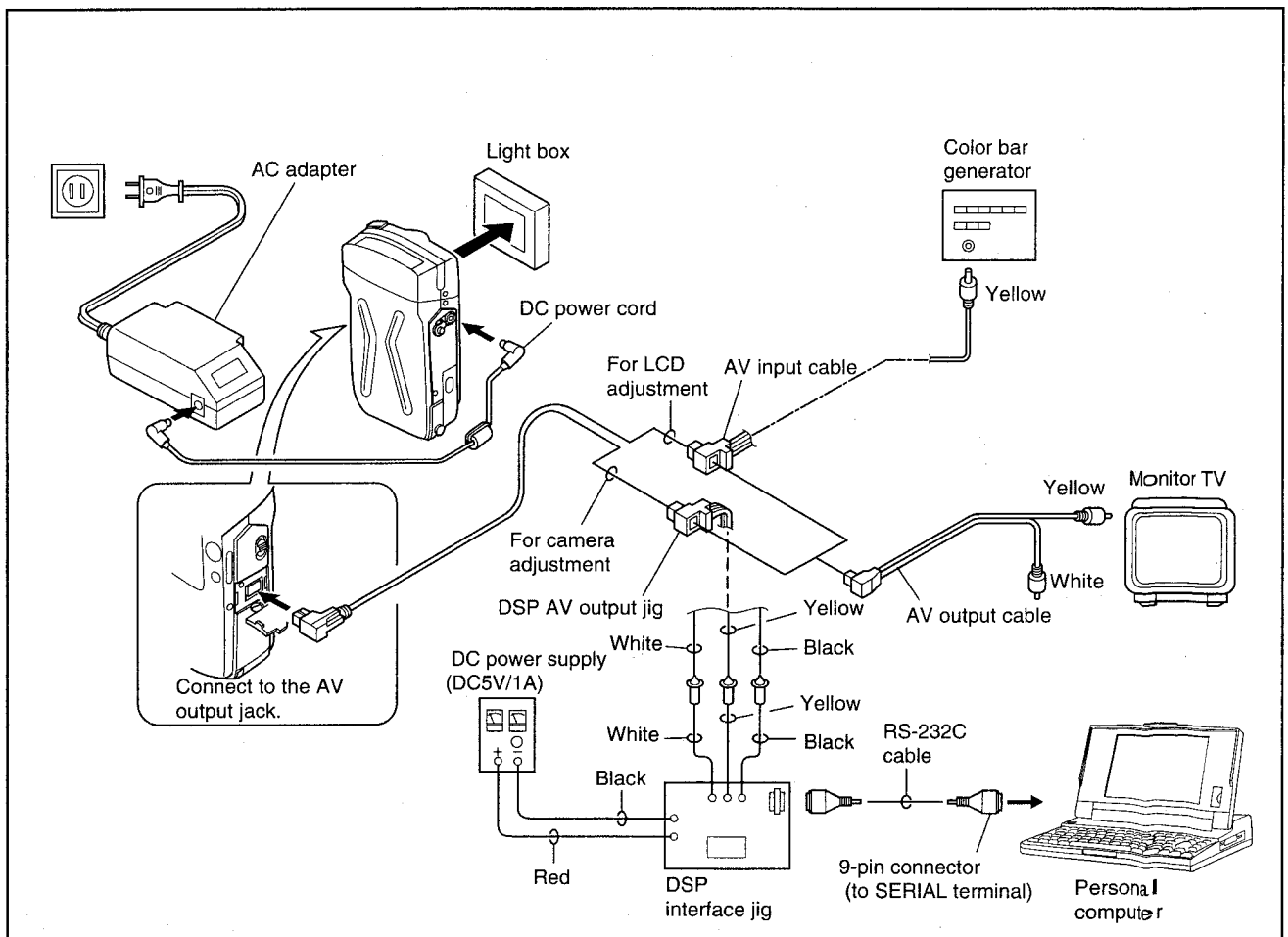


Fig. 2

3. List of Adjustments Required After Major Components are Replaced

The following table lists the items which must at least be adjusted when major components are replaced. If several components or peripheral circuits of the major components are replaced, adjustment of more items may be necessary; therefore, use the table as a reference.

IMPORTANT: The factory default data is stored in IC1502 (EEPROM). After IC1502 (EEPROM) or the MAIN board is replaced, perform "[A] Data Initialize" on item 4-2.

Adjustment item (adjust by following the order listed)	Description of Major Component									
	SP board	LEN board	MAIN board	Lens ass'y	IC1001 (SEN)	IC1101 (CDS)	IC1201 IC1202	IC1501 (μP)	IC1502 (EROM)	IC1602 (DSP)
[A] Data Initialize			●						●	
[B] Electronic Volume										
[1] CDS offset adjustment	●		●			●			●	
[2] Sampling pulse adjustment			●						●	●
Backfocus Adjustment	●			●	●					
[C] Picture Adjustment										
[1] Iris adjustment	●	●	●	●	●		●	●	●	●
[2] Knee adjustment	●		●			●			●	
[3] Shutter adjustment										
[A] Shutter adjustment No. 1	●	●	●	●	●				●	
[B] Shutter adjustment No. 2	●	●	●	●	●				●	
[4] Matrix adjustment	●		●		●				●	
[5] White balance adjustment	●		●		●				●	
[6] Chroma gain adjustment	●		●		●				●	
[D] Spot Noise Adjustment			●		●				●	

4. Adjustment Procedure

IMPORTANT:

■ Error messages

If error messages appear on the computer display during adjustment, perform troubleshooting, referring to "Error Messages" in item 5.

■ In case of mistake in operation

Press the **[Esc]** key to return the computer display to the main menu screen, then restart adjustment.

■ Exiting adjustment

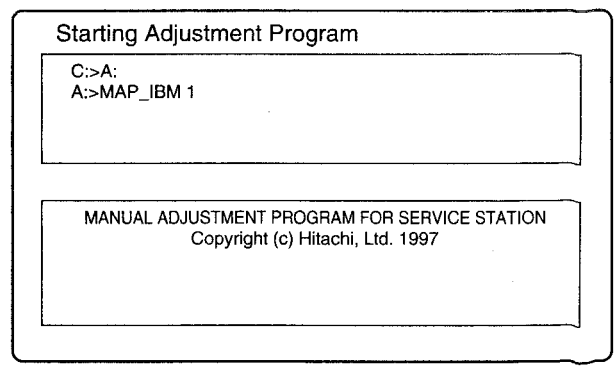
To exit adjustment, press the **[Esc]** key two or three times to return the computer display to the MS-DOS screen, and then turn off the MP-EG1A, test equipment and jigs.

4-1. Starting the Adjustment Program

See the computer manual for starting and operating the computer.

1) Start MS-DOS.
2) Insert the adjustment disk into the disk drive of computer.
3) Input **[a] [:]** following C:> on the MS-DOS screen, and then press the **[Enter]** key.
4) Following A:>, input **[M] [A] [P]** [_] (under-bar) **[I] [B] [M]** [ ] (space) **[1]**, and then press the **[Enter]** key. The adjustment program will start.

Computer Display



5) Input the number of the corresponding model name on the model select screen.

6) Make sure of the model name and press the **[Y]** key; the main menu screen will appear. Press the **[N]** key to return to the model select screen.

7) Press the **[A]-[E]** key to select the item to be adjusted.

Computer Display

Model Select Screen

```
**********************************************************
********** MODEL SELECT **********
**********************************************************

        [ 1 ]        MP-EG1A



        [ P ]        NEXT SELECTION
        [ESC]        END
   PLEASE SELECT THE TYPE OF THE SET.
   PRESS [ 1 ] - [ 5 ] OR [ P ] OR [ESC]
```

Model Verification Screen

```
MP-EG1A is selected.
Are you sure ?  (Y/N)
```

Main Menu Screen

```
**********************************************************
********** MANUAL ADJUSTMENT PROGRAM **********
**********************************************************

        [ A ]        DATA INITIALIZE
        [ B ]        ELECTRIC VOLUME
        [ C ]        ADJUSTMENT
        [ D ]        SPOT NOISE
        [ E ]        SETUP FOR LCD ADJUSTMENT
        [ESC]        END

   PLEASE SELECT [ A ] - [ E ] or [ESC]
```

4-2. Initial Setting (DATA INITIALIZE)

IMPORTANT: Be sure to execute initialization after replacing IC1502 (EEPROM) or the MAIN board. The initial setting need not be performed after other components are replaced.

1) Press the **[A]** key to select DATA INITIALIZE.
2) Make sure of the data write message and press the **[Y]** key. The initialization will be executed.
   Press the **[N]** key to restore the main menu screen.
3) If data has been written normally, FINISHED WRITING DATA will appear.
4) Press any key to restore the Main Menu Screen.

Computer Display

Main Menu Screen

```
**********************************************************
********** MANUAL ADJUSTMENT PROGRAM **********
**********************************************************

        [ A ]        DATA INITIALIZE
        [ B ]        ELECTRIC VOLUME
        [ C ]        ADJUSTMENT
        [ D ]        SPOT NOISE
        [ E ]        SETUP FOR LCD ADJUSTMENT
        [ESC]        END

   PLEASE SELECT [ A ] - [ E ] or [ESC]
```

Message for Verifying Data Writing

```
<< DATA WRITING >>
START TO SEND DATA ?  (Y/N)
```

Data Being Written

```
PLEASE WAIT A MOMENT.
```

Writing Complete Screen

```
FINISHED WRITING DATA.
PRESS ANY KEY
```

4-3. Electronic Volume Adjustment (ELECTRIC VOLUME)

1) Press the **[B]** key to select ELECTRIC VOLUME.
2) Press the **[1]** or **[2]** key to select the item to be adjusted.

Main Menu Screen

```
**********************************************************
********** MANUAL ADJUSTMENT PROGRAM **********
**********************************************************

        [ A ]        DATA INITIALIZE
        [ B ]        ELECTRIC VOLUME
        [ C ]        ADJUSTMENT
          :            :

   PLEASE SELECT [ A ] - [ E ] or [ESC]
```

Electronic Volume Adjustment Screen

```
**********************************************************
********** ELECTRIC VOLUME **********
**********************************************************

        [ 1 ]        CDS OFFSET
        [ 2 ]        CDS SAMPLING PULSE

        [ESC]        RETURN TO MAIN MENU
   PLEASE SELECT [ 1 ], [ 2 ] or [ESC]
```

[1] CDS offset adjustment

1) Press the **[1]** key to select CDS Offset Adjustment.
2) When the adjustment is completed normally, FINISHED WRITING DATA and ADJUSTMENT COMPLETED will appear.
3) Press any key to restore the Electronic Volume Adjustment Screen.
4) **Turn the MP-EG1A off and then on again.**

Electronic Volume Adjustment Screen

```
**********************************************************
********************* ELECTRIC VOLUME ********************
**********************************************************

        [ 1 ]        CDS OFFSET
        [ 2 ]        CDS SAMPLING PULSE

        [ESC]        RETURN TO MAIN MENU
   PLEASE SELECT [ 1 ], [ 2 ] or [ESC]
```

Screen for Adjustment Being Executed

```
<< ADJUSTMENT OF CDS OFFSET >>

PLEASE WAIT AROUND 50 SEC.
```

Adjustment Complete Screen

```
FINISHED WRITING DATA.
ADJUSTMENT COMPLETED.

PRESS ANY KEY
```

[2] Sampling pulse adjustment

Object: To suppress noise in the CCD sensor output signal and maximize the signal level.

Fault due to incomplete adjustment:
Cross beat or horizontal noise will appear.

Setup: Turn the MP-EG1A on and wait for approx. 2 minutes until the internal circuits are stabilized, then start adjustment.

1) Press the **[2]** key to select Sampling Pulse Adjustment.
2) When the adjustment is completed normally, FINISHED WRITING DATA and ADJUSTMENT COMPLETED will appear.
3) Press any key to restore the Electronic Volume Adjustment Screen.
4) Press the **[Esc]** key to restore the Main Menu Screen.

Electronic Volume Adjustment Screen

```
**********************************************************
********************* ELECTRIC VOLUME ********************
**********************************************************

        [ 1 ]        CDS OFFSET
        [ 2 ]        CDS SAMPLING PULSE

        [ESC]        RETURN TO MAIN MENU
   PLEASE SELECT [ 1 ], [ 2 ] or [ESC]
```

Screen for Adjustment Being Executed

```
<< ADJUSTMENT OF CDS SAMPLING PULSE >>

NOW ADJUSTING ...
```

Adjustment Complete Screen

```
FINISHED WRITING DATA.
ADJUSTMENT COMPLETED.

PRESS ANY KEY
```

4-4. Picture Adjustment (ADJUSTMENT)

IMPORTANT: Perform backfocus adjustment if necessary before starting picture adjustment. If picture adjustment is performed while backfocus drifts conspicuously or is in unsharp status, it could result in incomplete adjustment. (See page 1-12 for backfocus adjustment.)

1) Press the **[C]** key to select ADJUSTMENT.
2) Press the **[1] - [6]** key to select the item to be adjusted.

Main Menu Screen

```
**********************************************************
********** MANUAL ADJUSTMENT PROGRAM **********
**********************************************************

        [ A ]        DATA INITIALIZE
        [ B ]        ELECTRIC VOLUME
        [ C ]        ADJUSTMENT
        [ D ]        SPOT NOISE
          :            :
   PLEASE SELECT [ A ] - [ E ] or [ESC]
```

Picture Adjustment Screen

```
**********************************************************
********************* ADJUSTMENT *********************
**********************************************************

        [ 1 ]        AUTO IRIS CONTROL
        [ 2 ]        KNEE
        [ 3 ]        SHUTTER
        [ 4 ]        MATRIX
        [ 5 ]        WHITE BALANCE
        [ 6 ]        CHROMA GAIN
        [ESC]        RETURN TO MAIN MENU

   PLEASE SELECT [ 1 ] - [ 6 ] OR [ESC]
```

[1] Iris adjustment

Object: To set the iris control data.

Fault due to incomplete adjustment: The picture is too bright or too dark.

Setup: Remove the chart from the light box, set the zoom switch to the telephoto end, and point the camera at the light box so as to fill the screen with its white section. (The distance from the MP-EG1A lens surface to the light box must be approx. 20 cm.)

1) Press the **[1]** key to select AUTO IRIS CONTROL.
2) When the iris open & close adjustment is completed, ADJUSTMENT COMPLETED will appear.
3) Press any key to display the iris adjustment screen.

4) When the iris adjustment is completed, ADJUSTMENT FINISHED will appear.
5) Press any key to display the Hallcurve adjustment screen.

6) When the Hallcurve adjustment is completed, ADJUSTMENT COMPLETED will appear.
7) Press any key to restore the Picture Adjustment Screen.
8) **Turn the MP-EG1A off and then on again.**

■ After the iris adjustment is completed, return both the distance from the MP-EG1A lens surface to the light box and the zoom position to the original states.

Picture Adjustment Screen

```
**********************************************************
********** ADJUSTMENT **********
**********************************************************
        [ 1 ]        AUTO IRIS CONTROL
        [ 2 ]        KNEE
          :            :
        [ESC]        RETURN TO MAIN MENU

      PLEASE SELECT [ 1 ] - [ 6 ] OR [ESC]
```

Screen for Iris Open & Close Adjustment

```
<< ADJUSTMENT OF IRIS OPEN & CLOSE >>
PLEASE WAIT AROUND 10 SEC.
```

Iris Open & Close Adjustment Complete Screen

```
FINISHED WRITING DATA.
ADJUSTMENT COMPLETED.

PRESS ANY KEY
```

Screen for Iris Adjustment Being Executed

```
<< ADJUSTMENT OF IRIS >>
PLEASE WAIT AROUND 20 SEC.
```

Iris Adjustment Complete Screen

```
ROUGH ADJUSTMENT  : XX TIMES
FINE ADJUSTMENT   : XX TIMES
ADJUSTMENT FINISHED

PRESS ANY KEY
```

(This may not be displayed.)

Screen for Hallcurve Adjustment Being Executed

```
<<ADJUSTMENT OF HALLCURVE>>
PLEASE WAIT AROUND 30 SEC.
                  *
ADJUSTMENT POINT 0 1 2 3 4 5 6 7 8 9 A B C
```

(The mark lights in sequence.)

Hallcurve Adjustment Complete Screen

```
FINISHED WRITING DATA.
ADJUSTMENT COMPLETED.

PRESS ANY KEY
```

[2] Knee adjustment

Object: To set the knee level of the high level signal.

Fault due to incomplete adjustment: Color of highly illuminated object is too light or too dense.

Setup: 1) Connect an oscilloscope to the AV output cable (video output).
2) Point the camera at the grayscale chart.

1) Press the **[2]** key to select KNEE.
2) Follow the instructions on the screen, and if the setup is finished, press the **[Enter]** key to start adjustment.

[Continued on next page]

Picture Adjustment Screen

```
**********************************************************
********** ADJUSTMENT **********
**********************************************************
        [ 1 ]        AUTO IRIS CONTROL
        [ 2 ]        KNEE
          :            :
        [ESC]        RETURN TO MAIN MENU

      PLEASE SELECT [ 1 ] - [ 6 ] OR [ESC]
```

Knee Adjustment Step 1 Screen

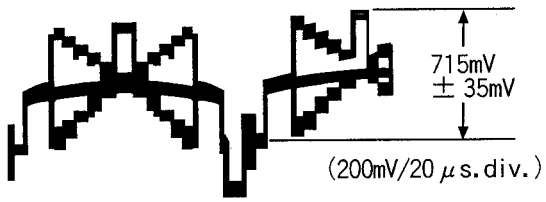
```
<< KNEE ADJUSTMENT >> STEP1

* THIS ADJUSTMENT ONLY NEEDED AFTER REPLACING IC1101 OR IC1502.
* THE [1] IRIS CONTROL ADJUSTMENT SHOULD HAVE JUST BEEN COMPLETED.

PLEASE POINT AT THE CHART AND PRESS THE FOLLOWING KEY.

RETURN TO MENU. [ ESC ]
GO TO NEXT STEP. [ ENTER ]
```

Screen for Knee Adjustment Step 1 Being Executed

```
<< KNEE ADJUSTMENT >> STEP1
PLEASE WAIT A MOMENT.
```

Continued on next page

3) Make sure that knee adjustment step 2 screen appears.
4) Check the luminance level of the video signal waveform on the oscilloscope, and press the **[U]** and **[D]** keys on the computer to set the level to 715(±35) mV.
   - With coarse adjustment, use the **[U]** and **[D]** keys to bring the level near 715 mV, and then with precise adjustment, holding the **[Ctrl]** key, press the **[U]** and **[D]** keys to set the level to 715(±35) mV.
   - **Take note of the luminance level, since it is used in knee adjustment step 3.**



5) Press the **[Enter]** key to move to knee adjustment step 3 screen.
6) Make sure that knee adjustment step 3 screen appears.
7) Check the luminance level of the video signal waveform on the oscilloscope, and press the **[U]** and **[D]** keys on the computer to set the level to that noted in step 2.
   - Use the **[U]** and **[D]** keys to coarsely adjust the level, and then, holding the **[Ctrl]** key, press the **[U]** and **[D]** keys to precisely adjust.
   - Press the **[C]** key to review the waveform obtained in step 2.
8) Press the **[Enter]** key. When the adjustment has been completed normally, ADJUSTMENT COMPLETED will appear.
9) Press any key to restore the Picture Adjustment Screen.

Knee Adjustment Step 2 Screen

```
<< KNEE ADJUSTMENT >> STEP2

SET LUMINANCE LEVEL TO 100(+/-5)IRE OR 715(+/-35)mV

ROUGH ADJUSTMENT
[ U ]          UP
[ D ]          DOWN

FINE ADJUSTMENT
[ CTRL ] + [ U ]   UP
[ CTRL ] + [ D ]   DOWN

[ ENTER ]      DECISION
```

Knee Adjustment Step 3 Screen

```
<< KNEE ADJUSTMENT >> STEP3

ADJUST THE LUMINANCE LEVEL TO MATCH THE LEVEL FROM STEP2
ROUGH ADJUSTMENT
[ U ]          UP
[ D ]          DOWN

FINE ADJUSTMENT
[ CTRL ] + [ U ]   UP
[ CTRL ] + [ D ]   DOWN

[ C ]  REREAD THE LEVEL FROM STEP2
[ ENTER ]      DECISION
```

Screen for Verifying Step 2 Value

```
<< KNEE ADJUSTMENT >> STEP3

WAVEFORM ON OSCILLOSCOPE IS NOW DISPLAYING ADJUSTED AT STEP2
(PRESS [C] TO RETURN TO STEP3 MENU)
```

Knee Adjustment Complete Screen

```
<< KNEE ADJUSTMENT >> STEP3
ADJUSTMENT COMPLETED.

PRESS ANY KEY
```

[3] Shutter adjustment

1) Press the **[3]** key to select SHUTTER.
2) Press the **[A]** or **[B]** key to select the item to be adjusted.

[3-A] Shutter adjustment No. 1

Object: To measure the shutter closing time and store the still picture exposure control data in memory.

Fault due to incomplete adjustment: The still picture is too bright or too dark.

Setup: 1) Point the camera at the light box without chart inserted.
2) Fit a C12 filter over the lens of the MP-EG1A.(Hold the filter with your hand until the adjustment is completed.)

1) Press the **[A]** key to select SHUTTER ADJUSTMENT No. 1.
2) The screen for the light amount being checked will appear. If the light amount is the specified one, "LIGHT CONDITION IS GOOD" will appear.
3) Press any key. The adjustment will be executed.
4) When the adjustment is completed, the Shutter Adjustment Screen will be restored.

Picture Adjustment

```
**********************************************************
********************** ADJUSTMENT **********************
**********************************************************

[ 1 ]          AUTO IRIS CONTROL
[ 2 ]          KNEE
[ 3 ]          SHUTTER
[ 4 ]          MATRIX
  :              :
[ESC]          RETURN TO MAIN MENU

PLEASE SELECT [ 1 ] - [ 6 ] OR [ESC]
```

Shutter Adjustment Screen

```
**********************************************************
****************** SHUTTER ADJUSTMENT ******************
**********************************************************

[ A ]  SHUTTER ADJUSTMENT No.1
[ B ]  SHUTTER ADJUSTMENT No.2

[ESC]  END
PLEASE SELECT [ A ], [ B ] or [ESC]
```

Screen for Light Amount Being Verified

```
SHUTTER ADJUSTMENT No.1
NOW CHECKING LIGHT CONDITION.
```

Continued on next page

Light Amount OK Screen

```
LIGHT CONDITION IS GOOD.
PRESS ANY KEY
```

Screen for Being Adjusted

```
ADJUSTING NOW.
PLEASE WAIT A MOMENT.
```

[3-B] Shutter adjustment No. 2

Object: To measure the shutter closing time and store the still picture exposure control data in memory.

Fault due to incomplete adjustment: The still picture is too bright or too dark.

Setup: Point the camera at the bulb-type fluorescent lamp (equivalent to 100 W). (The distance from the MP-EG1A lens surface to the lamp must be approx. 10 cm.)

1) Press the **[B]** key to select SHUTTER ADJUSTMENT No. 2.
2) The screen for the light amount being checked will appear. If the light amount is the specified one, "LIGHT CONDITION IS GOOD" will appear.
3) Press any key. The adjustment will be executed.
4) When the adjustment is completed, the Shutter Adjustment Screen will be restored.
5) Press the **[Esc]** key to restore the Picture Adjustment Screen.
6) **Turn the MP-EG1A off and then on again.**

■ After the shutter adjustment is completed, return both the distance from the MP-EG1A lens surface to the light box and the zoom position to the original states.

Shutter Adjustment Screen

```
**********************************************************
********** SHUTTER ADJUSTMENT **********
**********************************************************
        [ A ]  SHUTTER ADJUSTMENT No.1
        [ B ]  SHUTTER ADJUSTMENT No.2

        [ESC]  END
PLEASE SELECT [ A ], [ B ] or [ESC]
```

Screen for Light Amount Being Checked

```
SHUTTER ADJUSTMENT No.2
NOW CHECKING LIGHT CONDITION.
```

Light Amount OK Screen

```
LIGHT CONDITION IS GOOD.
PRESS ANY KEY
```

Screen for Being Adjusted

```
ADJUSTING NOW.
PLEASE WAIT A MOMENT.
```

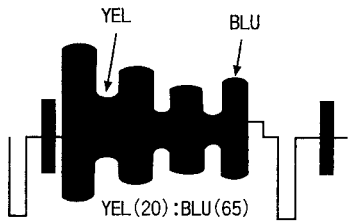
[4] Matrix adjustment

Object: To correct variations in the chroma level.

Fault due to incomplete adjustment: Color reproduction deteriorates.

Setup: 1) Connect an oscilloscope to the AV output cable (video output).
2) Point the camera at the color bar chart.

1) Press the **[4]** key to select MATRIX.
2) Make sure that the matrix adjustment screen appears.
3) Check the video signal waveform on the oscilloscope, and press the **[U]** and **[D]** keys on the computer to adjust the waveform level.
   - Press the **[D]** key to minimize the yellow level.
   - Press the **[U]** key to set the ratio between the yellow and blue levels near 20:65, and then, holding the **[Ctrl]** key, press the **[U]** and **[D]** keys to precisely adjust the ratio to 20:65.



(100mV/10 μs.div.)

4) Press the **[Enter]** key to write the data to the EEPROM.
5) When the adjustment is completed, ADJUSTMENT COMPLETED will appear.
6) Press any key to restore the Picture Adjustment Screen.

Picture Adjustment Screen

```
**********************************************************
********** ADJUSTMENT **********
**********************************************************
        :              :
        [ 3 ]          SHUTTER
        [ 4 ]          MATRIX
        [ 5 ]          WHITE BALANCE
        [ 6 ]          CHROMA GAIN
        [ESC]          RETURN TO MAIN MENU

PLEASE SELECT [ 1 ] - [ 6 ] OR [ESC]
```

Matrix Adjustment Screen

```
<< ADJUSTMENT OF MATRIX >>

ROUGH ADJUSTMENT
[ U ]              UP
[ D ]              DOWN

FINE ADJUSTMENT
[ CTRL ] + [ U ]   UP
[ CTRL ] + [ D ]   DOWN

[ ENTER ]   SAVE & RETURN TO MENU
[ ESC ]     QUIT
```

Matrix Adjustment Complete Screen

```
<< ADJUSTMENT OF MATRIX >>

ADJUSTMENT COMPLETED.

PRESS ANY KEY
```

[5] White balance adjustment

Object: To set the white balance under the color temperature which is the reference for auto white balance.

Fault due to incomplete adjustment:

1) The colors of the subject and its edges are different.
2) A white object is not recorded white.

Setup: 1) Point the camera at the grayscale chart.
2) Fit a C12 filter over the lens of the MP-EG1A.(Hold the filter with your hand until the adjustment is completed.)

1) Press the **[5]** key to select WHITE BALANCE.
2) Input **[0** (zero)**]** **[B]** in the R-B offset data input section on the white balance adjustment screen, and press the **[Enter]** key.
3) Input **[1]** **[3]** in the Mg-G offset data input section on the white balance adjustment screen, and press the **[Enter]** key.
4) When the adjustment is completed, ADJUSTMENT COMPLETED will appear.
5) Press any key to restore the Picture Adjustment Screen.

Picture Adjustment Screen

```
**********************************************************
********** ADJUSTMENT **********
**********************************************************

        :           :
      [ 4 ]       MATRIX
      [ 5 ]       WHITE BALANCE
      [ 6 ]       CHROMA GAIN
      [ESC]       RETURN TO MAIN MENU

   PLEASE SELECT [ 1 ] - [ 6 ] OR [ESC]
```

Screen for Being Adjusted

```
<< WHITE BALANCE ADJUSTMENT >>
INPUT DATA OF OFFSET FOR R-B -->0B
```

Input **[0 (zero)]** **[B]** and press **[Enter]**.

```
<< WHITE BALANCE ADJUSTMENT >>
INPUT DATA OF OFFSET FOR Mg-G -->13
```

Input **[1]** **[3]** and press **[Enter]**

Screen for Data Being Written

```
<< WHITE BALANCE ADJUSTMENT >>
PLEASE WAIT A MOMENT.
```

White Balance Adjustment Complete Screen

```
<< WHITE BALANCE ADJUSTMENT >>
ADJUSTMENT COMPLETED.

PRESS ANY KEY
```

[6] Chroma gain adjustment

Object: To set the color saturation under the reference chroma signal.

Fault due to incomplete adjustment: The color of image is denser or lighter than that of subject.

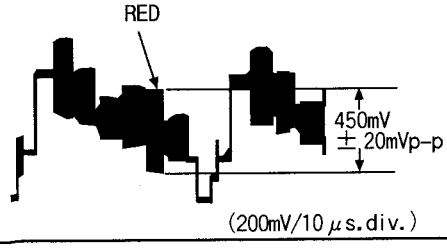
Setup:

1) Connect an oscilloscope or a vectorscope to the AV output cable (video output).
2) Point the camera at the color bar chart.
3) Fit a C12 filter over the lens of the MP-EG1A.(Hold the filter with your hand until the adjustment is completed.)

1) Press the **[6]** key to select CHROMA GAIN.
2) Make sure that the chroma gain adjustment screen has been displayed.

[Adjustment using oscilloscope]

3) Check the video signal waveform on the oscilloscope, and press the **[U]** and **[D]** keys on the computer to adjust the red level to 450±20 mVp-p.
   - With coarse adjustment, use the **[U]** and **[D]** keys to bring the level near 450 mV, and then with precise adjustment, holding the **[Ctrl]** key, press the **[U]** and **[D]** keys to set the level to 450±20 mVp-p.



Picture Adjustment Screen

```
**********************************************************
********** ADJUSTMENT **********
**********************************************************

        :           :
      [ 4 ]       MATRIX
      [ 5 ]       WHITE BALANCE
      [ 6 ]       CHROMA GAIN
      [ESC]       RETURN TO MAIN MENU

   PLEASE SELECT [ 1 ] - [ 6 ] OR [ESC]
```

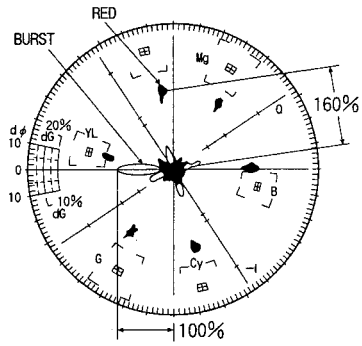
Chroma Gain Adjustment Screen

```
<< CHROMA GAIN >>

ROUGH ADJUSTMENT
[ U ]           UP
[ D ]           DOWN

FINE ADJUSTMENT
[ CTRL ] + [ U ]   UP
[ CTRL ] + [ D ]   DOWN

[ ENTER ]   SAVE & RETURN TO MENU
[ ESC ]     QUIT
```

Continued on next page

[Adjustment using vectorscope]

3) Check the signals on the vectorscope, and use the **[U]** and **[D]** keys on the computer to adjust the red vector level to 160±5% with respect to the burst level (100%).
   - With coarse adjustment, use the **[U]** and **[D]** keys to bring the level near the specification, and then with precise adjustment, holding the **[Ctrl]** key, press the **[U]** and **[D]** keys to set the level at 160±5%.



4) Press the **[Enter]** key to write the data to the EEPROM.
5) When the adjustment is completed, ADJUSTMENT COMPLETED will appear.
6) Press any key to restore the Picture Control Adjustment Screen.
7) Press the **[Esc]** key to restore the Main Menu Screen.

Chroma Gain Adjustment Screen

```
<< CHROMA GAIN >>

ROUGH ADJUSTMENT
[ U ]            UP
[ D ]            DOWN

FINE ADJUSTMENT
[ CTRL ] + [ U ]   UP
[ CTRL ] + [ D ]   DOWN

[ ENTER ]   SAVE & RETURN TO MENU
[ ESC ]     QUIT
```

Screen for Data Being Written

```
FINISHED WRITING DATA.
```

Chroma Gain Adjustment Complete Screen

```
ADJUSTMENT COMPLETED.

PRESS ANY KEY
```

4-5. Spot Noise Adjustment

Subsidiary Information:

■ What is spot noise?

Spot Noise refers to white bright dot that is visible when the lens is covered due to pixel defect.

■ Checking before starting adjustment

Perform this adjustment with all products in which spot noise might occur. Before starting adjustment, cover the MP-EG1A lens surface with black paper, etc. and check spot noise on the monitor screen.

1) Cover the lens surface with black paper, etc.
2) Press the **[D]** key to select SPOT NOISE.
3) The screen for spot noise being detected will appear. Follow the instructions on the screen thereafter.

[Spot noise cannot be detected or there is no spot noise]

4) If "CANNOT FIND THE SPOT NOISE" appears, press any key to restore the Main Menu Screen.

[When spot noise is detected]

4) If the number of detected spot noise appears such as "X SPOT NOISE FOUND", press any key to proceed with the next screen.

Main Menu Screen

```
**********************************************************
********** MANUAL ADJUSTMENT PROGRAM **********
**********************************************************

[ D ]    SPOT NOISE
[ E ]    SETUP FOR LCD ADJUSTMENT
[ESC]    END

PLEASE SELECT [ A ] - [ E ] or [ESC]
```

Screen for Spot Noise Being Detected

```
**********************************************************
********** SPOT NOISE COMPENSATE **********
**********************************************************

SEARCHING SPOT NOISE, NOW.

PLEASE WAIT A MOMENT.
```

Screen when no spot noise is found

```
**********************************************************
********** SPOT NOISE COMPENSATE **********
**********************************************************

CAN NOT FIND THE SPOT NOISE !

PRESS ANY KEY
```

Screen when spot noise is detected

```
**********************************************************
********** SPOT NOISE COMPENSATE **********
**********************************************************

X SPOT NOISE FOUND

PRESS ANY KEY
```

(Displays the number of detected spot noise)

[Press any key]

Continued on next page.

5) Make sure that the cursor blinks at the spot noise section on the monitor screen.
If it can be confirmed: Press the **[Y]** key. -> Proceed with step 6.
If it cannot be confirmed: Press the **[N]** key. -> Proceed with step 8.

6) Observe the section where the cursor is blinking on the monitor screen, and press the **[space]** key until spot noise disappears completely.
7) Make sure that spot noise has disappeared, and then press the **[Enter]** key.

8) Press any key and proceed with the next screen.

9) Repeat steps 5-8 for each case of detected spot noise.

10) When the compensation of all spot noise has been completed, "COMPLETE." will appear.
11) Press any key to restore the Main Menu Screen.

```
**********************************************************
********** SPOT NOISE COMPENSATE **********
**********************************************************

CAN YOU SEE THE BLINKING CURSOR ? (Y/N)
```

Press the [Y] key if it can be confirmed.
Press the [N] key if it cannot be confirmed.

Screen when [Y] is pressed.

```
**********************************************************
********** SPOT NOISE COMPENSATE **********
**********************************************************

LOOK AT THE CURSOR POINT.

WHILE YOU CAN SEE THE SPOT NOISE, PRESS SPACE KEY.

IF THE SPOT NOISE CLEARS, THEN PRESS ENTER KEY.
```

Press the [space] key until spot noise disappears.
Press the [Enter] key when spot noise has disappeared.

Screen when [N] is pressed.

```
**********************************************************
********** SPOT NOISE COMPENSATE **********
**********************************************************

THIS SPOT NOISE IS IN THE BLANKING AREA OF TV.

PRESS ANY KEY.
```

Screen when compensation of spot noise is completed.

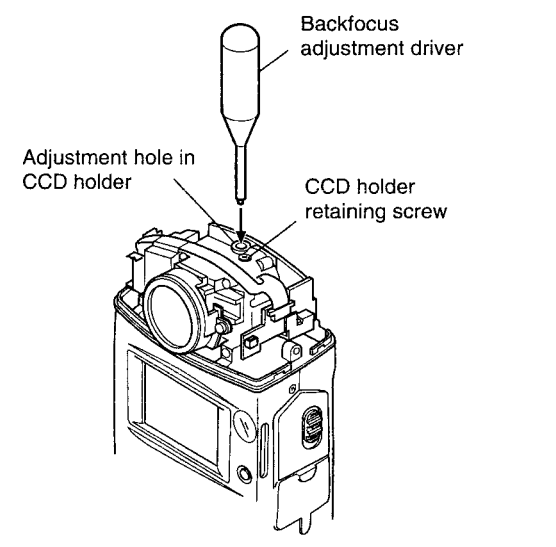
```
**********************************************************
********** SPOT NOISE COMPENSATE **********
**********************************************************

COMPLETE.

PRESS ANY KEY.
```

4-6. Backfocus Adjustment

Object: To set the center of the pan-focus range of the lens to the specification, 3 m.

Setup: 1) Set the distance from the MP-EG1A lens surface to the chart to 3.0 m ± 5 cm.
2) Point the camera at the backfocus chart (illuminate the chart with 200-300 lux).
3) Set the zoom switch to wide-angle end and point the camera so as to fill the monitor screen.

1) Remove the case from the camera block.
2) Loosen the screw holding the CCD holder at the top of the lens assembly.
3) Insert the backfocus adjustment driver into the adjustment hole in the CCD holder, and adjust it so that optimum focus is on the monitor screen.
4) Tighten the screw holding the CCD holder with the specified torque 1.5kg.cm.
5) Set the zoom switch to the telephoto end, and make sure the subject is in focus. If it is out of focus, restart adjustment from step 1).



4-7. LCD Adjustment

Setup for adjustment:

1) Press the **[E]** key to select SETUP FOR LCD ADJUSTMENT.
2) The screen for verifying switching to the LCD adjustment mode will appear.
3) Press the **[Enter]** key to execute. Pressing the **[Esc]** key will stop switching to the LCD adjustment mode and return the display to the main menu screen.
4) Perform LCD adjustment with the main menu displayed.

Main Menu Screen

```
**********************************************************
********** MANUAL ADJUSTMENT PROGRAM **********
**********************************************************
        :              :
    [ D ]          SPOT NOISE
    [ E ]          SETUP FOR LCD ADJUSTMENT
    [ESC]          END

PLEASE SELECT [ A ] - [ E ] or [ESC]
```

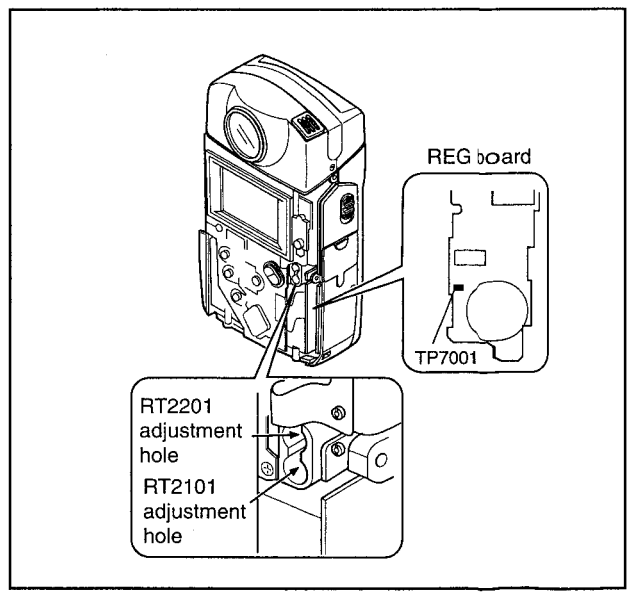
Screen for Verifying

```
<< LCD ADJUSTMENT MODE >>
SETUP FOR LCD ADJUSTMENT MODE.

[ ENTER ] EXECUTE
[ ESC ]   QUIT

PLEASE SELECT [ENTER] or [ESC]
```

[1] PLL adjustment

Setup: 1)Remove the front cover from the MP-EG1A.
2) Disconnect the DSP AV output jig and connect the AV input cable to the AV output jack (with no signal input).
3) Connect a frequency counter to TP7001 on the REG board. (Ground the frequency counter to the GND of power supply.)

1) Insert the MP-HD260A hard disk into the MP-EG1A.
2) Operate the MP-EG1A so the moving picture record mode indicator lights and records no signal.
3) Adjust RT2201 on the LCD board so the frequency counter reads 15.73±0.1 kHz.
4) Turn the MP-EG1A off to release the LCD adjustment mode.



[2] LCD voltage adjustment

1) Disconnect the AV input cable.
2) Insert the MP-HD260A hard disk into the MP-EG1A.
3) Operate the MP-EG1A so the moving picture record mode indicator lights and starts recording.
4) Pan the camera block slowly.
5) Make sure the vertical stripes on the MP-EG1A LCD monitor are visible.
6) Adjust RT2101 on the LCD board slowly to minimize the vertical stripes on the LCD monitor.

Note: If adjustment is incomplete, vertical stripes will be conspicuous on the LCD monitor and the contrast will also be low.

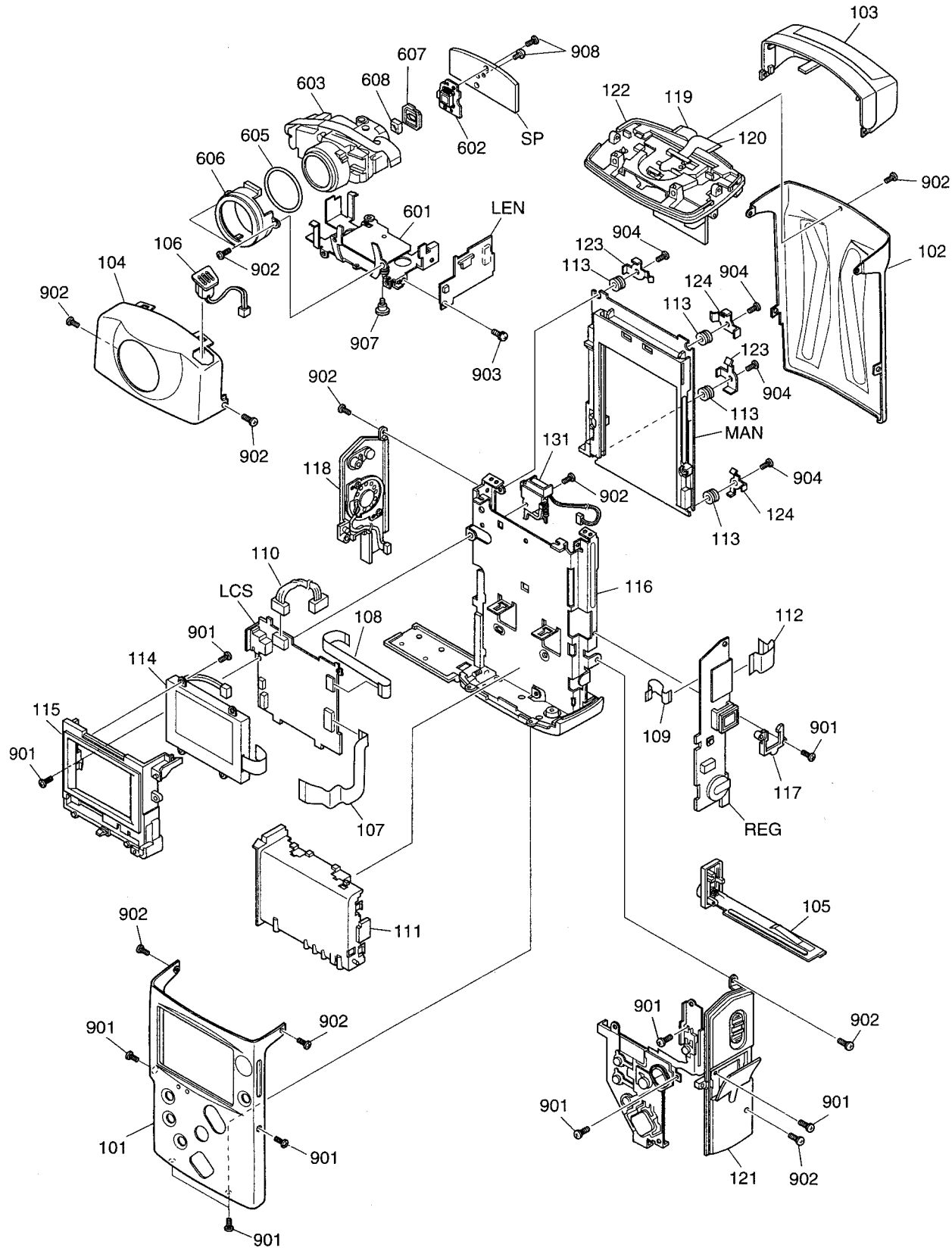
5. Error Messages

This section shows the error messages that appear on the computer display during adjustment and the procedure for troubleshooting them. If errors have occurred, troubleshoot the defects, and then press any key and restart adjustment work from the point where the error occurred.

Error message	Cause/Troubleshooting
ERROR OCCURRED. IRIS TROUBLE.	Troubleshooting: 1) Check whether MP-EG1A turns on or not. 2) Check the values of the iris drive circuit. 3) Check defective soldering, damage to pattern, etc. in the above circuit. 4) Check the iris block, and replace it if necessary.
ERROR OCCURRED ON dax ADJUSTMENT.	Troubleshooting: 1) Check the values of the Hall amp circuit. 2) Check defective soldering, damage to pattern, etc. in the above circuit.
D RANGE OVER ERROR ON dax ADJUSTMENT	Troubleshooting: 1) Check the values of the Hall amp circuit. 2) Check defective soldering, damage to pattern, etc. in the above circuit.
ERROR OCCURRED ON da0 and da1 ADJUSTMENT	Troubleshooting: 1) Check the values of the Hall amp and its peripheral circuits. 2) Check defective soldering, damage to pattern, etc. in the above circuits.
CAN NOT OPEN THE DATA FILE.	Cause: 1) The adjustment program (file) cannot be found. 2) The adjustment program (file) does not start. Troubleshooting: Check the adjustment disk, and replace it if necessary.
ERROR OCCURRED ON CDUTY ADJUSTMENT	Troubleshooting: 1) Check the values of the iris drive circuit. 2) Check defective soldering, damage to pattern, etc. in the above circuit.
ERROR OCCURRED ON FDET ADJUSTMENT	Troubleshooting: 1) Check the values of the Hall amp circuit. 2) Check defective soldering, damage to pattern, etc. in the above circuit. 3) Turn the MP-EG1A on again and re-adjust.
ERROR OCCURRED. ZOOM DOES NOT WORK.	Troubleshooting: Turn the MP-EG1A on again and re-adjust.
TOO BRIGHT	Cause: The subject is too bright. Troubleshooting: Move the camera farther away from the light box.
TOO DARK	Cause: The subject is too dark. Troubleshooting: 1) Check the fluorescent lamp of the light box. 2) Move the camera closer to the light box.
D RANGE OVER ERROR ON HALL AMP. IRIS CANNOT OPEN ANY MORE.	Cause: The subject is too dark. Troubleshooting: 1) Check the fluorescent lamp of the light box. 2) Move the camera closer to the light box. 3) Check the values of the Hall amp circuit. 4) Check defective soldering, damage to pattern, etc. in the above circuit. 5) Turn the MP-EG1A on again and re-adjust.
SATURATION ERROR TOO BRIGHT.	Cause: The subject is too bright. Troubleshooting: Move the camera farther away from the light box.
CAN'T ADJUST WHITE BALANCE. PLEASE RETRY AFTER CHECK ADJUSTMENT CONDITION.	Cause: The subject is too bright or too dark. Troubleshooting: 1) Check the fluorescent lamp of the light box. 2) Move the camera farther away from the light box or closer to it. 3) Turn the MP-EG1A on again and re-adjust.
ERROR SPOT NOISE COMPENSATION IS DISABLED BY INITIAL DATA. PLEASE CHECK THE EEPROM.	Causes: 1) Spot noise compensation has stopped because of the data in the EEPROM. 2) The data in the EEPROM has been destroyed (the EEPROM must be initialized). Troubleshooting: 1) Turn the MP-EG1A on again and re-adjust. 2) Check the EEPROM and replace it if necessary.
ERROR THRESHOLD DATA ERROR. PLEASE CHECK THE EEPROM.	Cause: The data in the EEPROM has been destroyed (the EEPROM must be initialized). Troubleshooting: 1) Turn the MP-EG1A on again and re-adjust. 2) Check the EEPROM and replace it if necessary.
ERROR THE SPOT NOISE IS TOO MANY. CAN NOT COMPENSATE ANY MORE.	Cause: The amount of spot noise that can be compensated for has reached the limit. Troubleshooting: 1) Turn the MP-EG1A on again and re-adjust. 2) Check the CCD sensor, and replace it if necessary.

CHAPTER 4 EXPLODED VIEW, REPLACEMENT PARTS LIST

Cabinet section

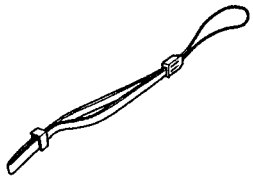
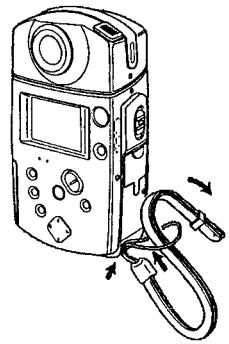
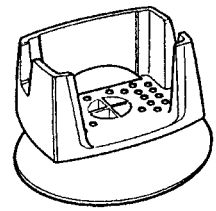
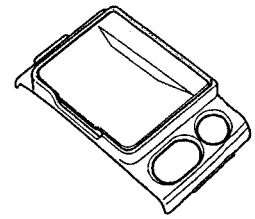
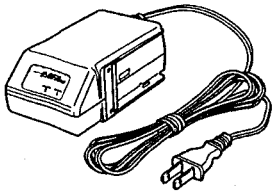
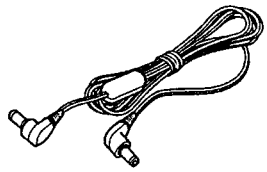
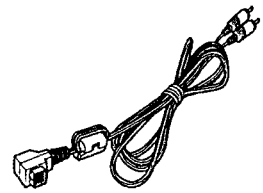
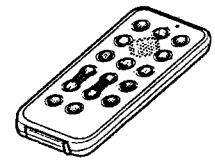
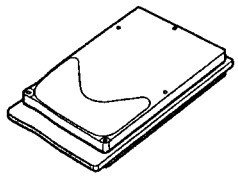
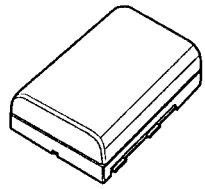
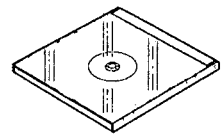
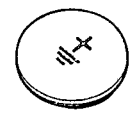


1. MECHANICAL PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION
		FOR FINALASSEMBLY
101	QA11486	COVER, FRONT
102	QA11374	COVER, REAR
103	QA11501	COVER, TOP(B)
104	QA11281	COVER, TOP(F)
105	QX12213	PLATE
106	GH10281	MICROPHONE
107	JD10571	FLEXIBLE, CONNECTOR
108	EK10801	FLEXIBLE, CONNECTOR
109	EK10791	FLEXIBLE, CONNECTOR
110	5842105	MINI CONNECTOR
111	NX13524	CASE, BATTERY
112	EK10882	FLEXIBLE, CONNECTOR
113	NX10453	RUBBER
114	DB10421	CRYSTAL, LIQUID
115	QX12181	FRAME
116	QA11717	COVER, BOTTOM
117	NX13511	HOLDER, JACK
118	QX12264	CASE, SIDE(L)
119	JD10551	FLEXIBLE, CONNECTOR
120	JD10561	FLEXIBLE, CONNECTOR
121	FH10348	SWITCH
122	NX13444	REVOLUTION AXIS
123	MD12201	PLATE, SHIELD(R)
124	MD12202	PLATE, SHIELD(L)
131	GY10191	SOLENOID UNIT
601	NQ10401	FRAME, LENS
602	UE11256	CCD IMAGE SENSOR ASSY
603	KQ10501	LENS ASSY
605	4592587	RING, LENS
606	QX12302	HOOD, LENS
607	NX11252	RUBBER
608	DT10151	CRYSTAL
901	8619002	SCREW (1.7X4)
902	MK10281	SCREW(1.7X3NK)
903	8650103	SCREW(2X3)
904	MJ10402	SCREW
907	MJ10391	SCREW(1.7BT)
908	7775945	SCREW(2X5)
		ACCESSORIES
802	TS13541	STRAP, HAND
803	TS13261	BRACKET, SUPPORT
804	PX10361	HOOD, LCD
805	TS13273	AC ADAPTOR (MP-AC1E)
806	EV10531	CORD, DC
807	5860785	CORD, AV OUT
808	HL10744	REMOTE HAND SET (MP-RM1A)

SYMBOL-NO	P-NO	DESCRIPTION

ACCESSORIES PACKAGE LIST

802 Wrist Strap  		803 Stand 	804 Sunshade for LCD screen 
805 AC adapter/charger [MP-AC1E] 	806 DC power cord 	807 Audio/video cable 	808 Remote control [MP-RM1A] 
PC Card [MP-HD260A] 	Battery pack [MP-BP1A] 	CD-ROM 	Lithium battery 

2. ELECTRICAL PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION
		CAPACITORS
C1002	0806158	ELECTROLYTIC 22UF 16V
C1003	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1004	0893234	CERAMIC CHIP 1500PF+80-20% 50V
C1005	AA00412R	CERAMIC CHIP 10UF+80-20% 16V
C1006	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1007	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1008	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1011	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1101	0893117	CERAMIC CHIP 22PF+-5% 50V
C1102	0893027	CERAMIC CHIP 0.1UF+-10% 25V
C1103	0893079	CERAMIC DISC 0.01UF+80-20% 50V
C1104	0806018	ELECTROLYTIC 2.2UF 6.3V
C1106	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1107	0806167	ELECTROLYTIC 47UF 4V
C1108	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1109	0806168	ELECTROLYTIC 47UF 6.3V
C1110	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1111	0893055	CERAMIC CHIP 0.1UF+80-20% 16V
C1113	0893055	CERAMIC CHIP 0.1UF+80-20% 16V
C1121	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1122	AA00412R	CERAMIC CHIP 10UF+80-20% 16V
C1123	0893125	CERAMIC CHIP 82PF+-5% 50V
C1124	0893125	CERAMIC CHIP 82PF+-5% 50V
C1127	0893122	CERAMIC CHIP 47PF+-5% 50V
C1133	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1201	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1202	0893201	CERAMIC CHIP 270PF 50V
C1203	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C1204	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1205	0893007	CERAMIC CHIP 0.082UF+-10% 16V
C1207	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1208	0893202	CERAMIC CHIP 330PF+-10% 50V
C1210	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1211	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C1212	0893133	CERAMIC CHIP 330PF+-5% 50V
C1216	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1219	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1301	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1302	0893215	CERAMIC CHIP 3300PF+-10% 50V
C1303	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1304	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1305	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1311	0806163	ELECTROLYTIC 33UF 10V
C1312	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1316	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1317	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1401	0806156	ELECTROLYTIC 22UF 4V
C1402	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C1403	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1405	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1407	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1501	AA00412R	CERAMIC CHIP 10UF+80-20% 16V
C1502	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1503	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1504	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1505	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1506	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1507	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1508	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1509	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1510	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1601	AA00325R	CERAMIC CHIP 4.7UF+80-20% 16V
C1602	0806134	ELECTROLYTIC 15UF 4V
C1603	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1604	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1605	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1606	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1607	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1608	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1609	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1610	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1611	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1613	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1614	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1615	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1616	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1617	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1618	AA00412R	CERAMIC CHIP 10UF+80-20% 16V
C1625	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1626	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1627	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1629	0893055	CERAMIC CHIP 0.1UF+80-20% 16V
C1630	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1631	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C1632	AA00412R	CERAMIC CHIP 10UF+80-20% 16V
C1633	AA00412R	CERAMIC CHIP 10UF+80-20% 16V
C1634	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1635	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1636	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1638	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1640	0893117	CERAMIC CHIP 22PF+-5% 50V
C1641	0893117	CERAMIC CHIP 22PF+-5% 50V
C1642	0893117	CERAMIC CHIP 22PF+-5% 50V
C1643	0893117	CERAMIC CHIP 22PF+-5% 50V
C1644	0893117	CERAMIC CHIP 22PF+-5% 50V
C1646	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1647	0893123	CERAMIC CHIP 56PF+-5% 50V
C1701	AA00324R	CERAMIC CHIP 2.2UF+80-20% 16V
C1702	AA00412R	CERAMIC CHIP 10UF+80-20% 16V
C1705	0806137	ELECTROLYTIC 100UF 4V
C1706	0806124	ELECTROLYTIC 10UF 4V
C1707	AA00324R	CERAMIC CHIP 2.2UF+80-20% 16V
C1708	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1709	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1710	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1711	0893175	CERAMIC CHIP 1000PF+-5% 50V
C2001	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2002	AA00412R	CERAMIC CHIP 10UF+80-20% 16V
C2003	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2004	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2005	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C2006	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C2007	0893175	CERAMIC CHIP 1000PF+-5% 50V
C2008	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2010	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2011	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2012	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2013	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2014	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2015	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2016	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2017	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2018	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2019	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2020	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2021	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2022	0893225	CERAMIC CHIP 0.1UF+80-20% 16V

SYMBOL-NO	P-NO	DESCRIPTION
C2023	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2024	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2025	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2026	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2101	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C2102	0893191	CERAMIC CHIP 6800PF+-10% 25V
C2104	0893062	CERAMIC CHIP 1UF+80-20% 16V
C2105	0893119	CERAMIC CHIP 33PF+-5% 50V
C2106	0893062	CERAMIC CHIP 1UF+80-20% 16V
C2107	0893112	CERAMIC CHIP 9.0PF+-0.5% 50V
C2108	0806124	ELECTROLYTIC 10UF 4V
C2109	AD10126R	ELECTROLYTIC 100UF 6.3V
C2112	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C2116	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C2123	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2130	AD10126R	ELECTROLYTIC 100UF 6.3V
C2131	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C2132	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C2133	0893059	CERAMIC CHIP 0.47UF+80-20% 16V
C2134	0806163	ELECTROLYTIC 33UF 10V
C2135	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C2136	AD10126R	ELECTROLYTIC 100UF 6.3V
C2137	0893224	CERAMIC CHIP 0.068UF+80-20% 16V
C2138	0893224	CERAMIC CHIP 0.068UF+80-20% 16V
C2139	0893224	CERAMIC CHIP 0.068UF+80-20% 16V
C2141	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C2142	AD10135R	ELECTROLYTIC 47UF 6.3V
C2144	0206654	ELECTROLYTIC 22UF 16V
C2145	0893062	CERAMIC CHIP 1UF+80-20% 16V
C2166	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C2171	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C2172	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C2174	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C2176	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C2179	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C2181	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2182	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2185	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C2191	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C2192	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C2193	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C2201	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C2202	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C2203	0806149	ELECTROLYTIC 4.7UF 25V
C2205	0893172	CERAMIC CHIP 560PF+-5% 50V
C2207	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C2210	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C2212	0893175	CERAMIC CHIP 1000PF+-5% 50V
C2215	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C2218	0893127	CERAMIC CHIP 120PF+-5% 50V
C2225	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2227	0893118	CERAMIC CHIP 27PF+-5% 50V
C2228	0893118	CERAMIC CHIP 27PF+-5% 50V
C2601	AA00393R	CHIP CERAMIC 1.0UF+80-20% 50V
C2602	AA00358R	CHIP CERAMIC 1.0UF+-10% 16V
C2604	AA00358R	CHIP CERAMIC 1.0UF+-10% 16V
C2605	AA00393R	CHIP CERAMIC 1.0UF+80-20% 50V
C2606	AA00358R	CHIP CERAMIC 1.0UF+-10% 16V
C2607	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2608	AA00358R	CHIP CERAMIC 1.0UF+-10% 16V
C2609	0206671	ELECTROLYTIC 10UF 10V
C2610	0893128	CERAMIC CHIP 150PF+-5% 50V
C2611	0206674	ELECTROLYTIC 4.7UF 16V
C2612	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2613	0893227	CERAMIC CHIP 0.22UF+80-20% 16V

SYMBOL-NO	P-NO	DESCRIPTION
C2614	0893222	CERAMIC CHIP 0.01UF+-10% 50V
C2615	0893222	CERAMIC CHIP 0.01UF+-10% 50V
C2616	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C2617	AD10136R	ELECTROLYTIC 47UF 16V
C2618	AD10136R	ELECTROLYTIC 47UF 16V
C2619	0893119	CERAMIC CHIP 33PF+-5% 50V
C2620	0893062	CERAMIC CHIP 1UF+80-20% 16V
C2621	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C2623	0893186	CERAMIC CHIP 0.033UF+-10% 16V
C2624	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C2631	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C2632	0893186	CERAMIC CHIP 0.033UF+-10% 16V
C2634	0893134	CERAMIC CHIP 390PF+-5% 50V
C2636	0893127	CERAMIC CHIP 120PF+-5% 50V
C2637	0893175	CERAMIC CHIP 1000PF+-5% 50V
C2641	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C2642	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C2643	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C3003	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C3004	0806169	ELECTROLYTIC 47UF 16V
C3005	0806145	ELECTROLYTIC 1UF 50V
C3006	0806157	ELECTROLYTIC 22UF 6.3V
C3007	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C3008	0893062	CERAMIC CHIP 1UF+80-20% 16V
C3011	0893117	CERAMIC CHIP 22PF+-5% 50V
C3012	0893116	CERAMIC CHIP 18PF+-5% 50V
C3013	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C3014	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C3015	0893119	CERAMIC CHIP 33PF+-5% 50V
C3016	0893126	CERAMIC CHIP 100PF+-5% 50V
C3017	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C3018	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C3021	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C3022	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C4002	AA00412R	CERAMIC CHIP 10UF+80-20% 16V
C4003	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C4004	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C4005	0893171	CERAMIC CHIP 470PF+-5% 50V
C4006	AA00325R	CERAMIC CHIP 4.7UF+80-20% 16V
C4007	0893171	CERAMIC CHIP 470PF+-5% 50V
C4008	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C4009	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C4010	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C4011	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C4012	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C4013	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C4014	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C4015	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C4016	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C4017	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C4018	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C4019	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C4020	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C4021	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C4022	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C4023	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C4024	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C4025	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C4026	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C4027	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C4028	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C4029	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C5001	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C5002	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C5003	0893225	CERAMIC CHIP 0.1UF+80-20% 16V

SYMBOL-NO	P-NO	DESCRIPTION
C5004	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C5006	0893062	CERAMIC CHIP 1UF+80-20% 16V
C5007	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C5008	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C5009	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C5011	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C6001	AA00412R	CERAMIC CHIP 10UF+80-20% 16V
C6002	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C6003	0806124	ELECTROLYTIC 10UF 4V
C6004	AA00324R	CERAMIC CHIP 2.2UF+80-20% 16V
C6005	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C6006	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C6007	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C6008	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C6009	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C6010	AA00324R	CERAMIC CHIP 2.2UF+80-20% 16V
C6013	AA00412R	CERAMIC CHIP 10UF+80-20% 16V
C6014	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C6015	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C6016	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C6017	0893062	CERAMIC CHIP 1UF+80-20% 16V
C6018	0893168	CERAMIC CHIP 330PF+-5% 50V
C6019	0893239	CERAMIC CHIP 0.01UF+80-20% 50V
C6020	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C6021	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C6022	0806124	ELECTROLYTIC 10UF 4V
C6023	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C6024	0893235	CERAMIC CHIP 2200PF+80-20% 50V
C6025	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C6026	0893242	CERAMIC CHIP 0.022UF+80-20% 50V
C6027	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C6028	AA00412R	CERAMIC CHIP 10UF+80-20% 16V
C6030	AA00412R	CERAMIC CHIP 10UF+80-20% 16V
C6031	AA00412R	CERAMIC CHIP 10UF+80-20% 16V
C6032	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C6034	AA00412R	CERAMIC CHIP 10UF+80-20% 16V
C6035	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C6036	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C6037	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C6039	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C6040	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C6041	0893062	CERAMIC CHIP 1UF+80-20% 16V
C6042	AA00412R	CERAMIC CHIP 10UF+80-20% 16V
C6043	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C6301	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C6401	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C6402	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C7001	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C7002	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C7003	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C7004	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C7005	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
CP1601	BE10222R	FILTER,LC
CP1602	BE10225R	FILTER,BAND PASS
CP5001	BE10372R	FILTER,LC
CP5002	BE10372R	FILTER,LC
CP5003	BE10372R	FILTER,LC
		RESISTORS
R1001	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R1002	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1004	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1005	0790015	CHIP RESISTOR 22 OHM+-5% 1/16W
R1102	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1103	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1104	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R1108	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R1109	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R1110	0790011	CHIP RESISTOR 10 OHM+-5% 1/16W
R1122	0790019	CHIP RESISTOR 47 OHM+-5% 1/16W
R1123	0790022	CHIP RESISTOR 68 OHM+-5% 1/16W
R1147	0790023	CHIP RESISTOR 82 OHM+-5% 1/16W
R1148	0104533	CHIP RESISTOR 1.5KOHM+-1% 1/16W
R1149	0104552	CHIP RESISTOR 6.8KOHM+-1% 1/16W
R1201	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1202	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1203	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R1204	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1205	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1206	0790067	CHIP RESISTOR 180KOHM+-5% 1/16W
R1207	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1208	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1209	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1213	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1214	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R1215	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1217	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1218	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1219	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1220	0790074	CHIP RESISTOR 560KOHM+-5% 1/16W
R1222	0790074	CHIP RESISTOR 560KOHM+-5% 1/16W
R1224	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1225	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1226	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1230	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1231	0104552	CHIP RESISTOR 6.8KOHM+-1% 1/16W
R1232	0104558	CHIP RESISTOR 5.6KOHM+-1% 1/16W
R1233	0104504	CHIP RESISTOR 56KOHM 1/16W
R1234	0105671	CHIP RESISTOR 31.6KOHM+-1% 1/16W
R1236	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R1237	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1306	0104099	CHIP RESISTOR 5.1 OHM+-5% 1/16W
R1308	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1309	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1310	0104099	CHIP RESISTOR 5.1 OHM+-5% 1/16W
R1321	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1322	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R1323	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1325	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1401	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R1402	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1501	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R1502	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R1503	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R1504	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1505	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1506	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1507	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R1508	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1509	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1510	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1515	0104724	CHIP RESISTOR 10KOHM+-1% 1/16W
R1516	0104724	CHIP RESISTOR 10KOHM+-1% 1/16W
R1517	0104556	CHIP RESISTOR 91KOHM+-1% 1/16W
R1518	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1519	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1604	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1605	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R1607	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION
R1608	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R1609	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R1610	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1611	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1613	0790015	CHIP RESISTOR 22 OHM+-5% 1/16W
R1614	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1615	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R1622	0104536	CHIP RESISTOR 3KOHM+-1% 1/16W
R1624	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R1625	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R1626	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R1627	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1628	0104502	CHIP RESISTOR 820 OHM+-1% 1/16W
R1629	0104501	CHIP RESISTOR 750 OHM+-1% 1/16W
R1630	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1631	0104571	CHIP RESISTOR 3.9KOHM+-1% 1/16W
R1632	0104532	CHIP RESISTOR 1.1KOHM+-1% 1/16W
R1633	0104571	CHIP RESISTOR 3.9KOHM+-1% 1/16W
R1634	0105674	CHIP RESISTOR 43KOHM+-1% 1/16W
R1635	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R1636	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R1637	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R1643	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R1646	0104501	CHIP RESISTOR 750 OHM+-1% 1/16W
R1647	0105666	CHIP RESISTOR 16KOHM+-1% 1/16W
R1657	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1658	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1702	0104093	CHIP RESSISTOR 75 OHM+-5% 1/16W
R1704	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1710	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1712	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1713	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1714	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R1715	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R1717	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1720	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R1721	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R1722	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R1723	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R1724	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R2001	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R2003	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R2004	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R2007	AQ00024R	CHIP RESISTOR 100 OHM+-5% 1/16W
R2008	AQ00024R	CHIP RESISTOR 100 OHM+-5% 1/16W
R2009	AQ00024R	CHIP RESISTOR 100 OHM+-5% 1/16W
R2010	AQ00024R	CHIP RESISTOR 100 OHM+-5% 1/16W
R2011	AQ00024R	CHIP RESISTOR 100 OHM+-5% 1/16W
R2012	AQ00024R	CHIP RESISTOR 100 OHM+-5% 1/16W
R2013	AQ00024R	CHIP RESISTOR 100 OHM+-5% 1/16W
R2014	AQ00024R	CHIP RESISTOR 100 OHM+-5% 1/16W
R2015	AQ00024R	CHIP RESISTOR 100 OHM+-5% 1/16W
R2016	AQ00024R	CHIP RESISTOR 100 OHM+-5% 1/16W
R2018	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R2101	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R2102	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R2103	0104565	CHIP RESISTOR 22KOHM+-1% 1/16W
R2104	0105203	CHIP RESISTOR 18KOHM+-0.5% 1/16W
R2105	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R2106	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R2107	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R2108	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R2110	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R2111	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R2112	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION
R2115	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R2117	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R2121	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R2122	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R2123	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R2124	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R2126	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R2128	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R2130	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R2132	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R2142	0104562	CHIP RESISTOR 39KOHM+-1% 1/16W
R2143	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R2145	0104563	CHIP RESISTOR 47KOHM+-1% 1/16W
R2147	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R2148	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R2165	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R2167	0104562	CHIP RESISTOR 39KOHM+-1% 1/16W
R2168	0105662	CHIP RESISTOR 33KOHM+-1% 1/16W
R2172	0105662	CHIP RESISTOR 33KOHM+-1% 1/16W
R2176	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R2178	0104565	CHIP RESISTOR 22KOHM+-1% 1/16W
R2179	0105662	CHIP RESISTOR 33KOHM+-1% 1/16W
R2181	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R2183	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R2184	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R2201	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R2204	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R2205	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R2207	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R2208	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R2209	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R2211	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R2213	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R2215	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R2217	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R2219	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R2225	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R2226	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R2601	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R2602	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R2603	0105197	CHIP RESISTOR 22KOHM+-0.5% 1/16W
R2604	0790067	CHIP RESISTOR 180KOHM+-5% 1/16W
R2605	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R2606	0105193	CHIP RESISTOR 1.8KOHM+-0.5% 1/16W
R2607	0104563	CHIP RESISTOR 47KOHM+-1% 1/16W
R2608	0103838	RESISTOR CHIP 390 OHM+-5% 0.1W
R2609	0104561	CHIP RESISTOR 18KOHM+-1% 1/10W
R2611	0104565	CHIP RESISTOR 22KOHM+-1% 1/16W
R2613	0104563	CHIP RESISTOR 47KOHM+-1% 1/16W
R2614	0105193	CHIP RESISTOR 1.8KOHM+-0.5% 1/16W
R2616	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R2621	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R2622	0105204	CHIP RESISTOR 12KOHM+-0.5% 1/16W
R2624	0104723	CHIP RESISTOR 4.7OHM+-1% 1/16W
R2625	0104723	CHIP RESISTOR 4.7OHM+-1% 1/16W
R2626	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R2628	0104723	CHIP RESISTOR 4.7OHM+-1% 1/16W
R2629	0104723	CHIP RESISTOR 4.7OHM+-1% 1/16W
R2641	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R2642	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R2646	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R2647	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R2648	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R2652	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R2657	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION
R2661	0105678	CHIP RESISTOR 3.3KOHM+-1% 1/16W
R2662	0104579	CHIP RESISTOR 12KOHM+-1% 1/16W
R3004	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R3005	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R3006	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R3007	0790073	CHIP RESISTOR 470KOHM+-5% 1/16W
R3008	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R3009	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R3010	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R3013	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R3014	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R3015	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R3016	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R3018	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R3022	AQ00037R	CHIP RESISTOR 1KOHM+-5% 1/16W
R3026	AQ00037R	CHIP RESISTOR 1KOHM+-5% 1/16W
R3029	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R3030	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R3031	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R3032	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R3033	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R3037	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R3038	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R3039	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R3043	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R3051	AQ00064R	CHIP RESISTOR 100KOHM+-5% 1/16W
R3060	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R3061	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R3062	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R3063	0790027	CHIP RESISTOR 180 OHM+-5% 1/16W
R3064	0104542	CHIP RESISTOR 10KOHM+-1% 1/16W
R3065	0104503	CHIP RESISTOR 27KOHM+-1% 1/16W
R3066	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R3067	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R3069	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R3070	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R3071	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R3072	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R3073	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R3076	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R4002	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R4003	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R4004	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R4005	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R4006	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R4007	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R4009	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R4010	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R4011	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R4031	AQ00024R	CHIP RESISTOR 100 OHM+-5% 1/16W
R4032	AQ00024R	CHIP RESISTOR 100 OHM+-5% 1/16W
R4033	AQ00024R	CHIP RESISTOR 100 OHM+-5% 1/16W
R4034	AQ00024R	CHIP RESISTOR 100 OHM+-5% 1/16W
R4035	AQ00024R	CHIP RESISTOR 100 OHM+-5% 1/16W
R4036	AQ00024R	CHIP RESISTOR 100 OHM+-5% 1/16W
R4037	AQ00024R	CHIP RESISTOR 100 OHM+-5% 1/16W
R4038	AQ00024R	CHIP RESISTOR 100 OHM+-5% 1/16W
R4039	AQ00024R	CHIP RESISTOR 100 OHM+-5% 1/16W
R4058	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R4060	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R4070	0104565	CHIP RESISTOR 22KOHM+-1% 1/16W
R5001	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R5003	AQ00019R	CHIP RESISTOR 47 OHM+-5% 1/16W
R5004	AQ00019R	CHIP RESISTOR 47 OHM+-5% 1/16W
R5005	AQ00019R	CHIP RESISTOR 47 OHM+-5% 1/16W
R5006	AQ00019R	CHIP RESISTOR 47 OHM+-5% 1/16W
R5007	AQ00019R	CHIP RESISTOR 47 OHM+-5% 1/16W
R5008	0790019	CHIP RESISTOR 47 OHM+-5% 1/16W
R5009	0790019	CHIP RESISTOR 47 OHM+-5% 1/16W
R5010	AQ00019R	CHIP RESISTOR 47 OHM+-5% 1/16W
R5012	AQ00019R	CHIP RESISTOR 47 OHM+-5% 1/16W
R5013	0790019	CHIP RESISTOR 47 OHM+-5% 1/16W
R5014	0790019	CHIP RESISTOR 47 OHM+-5% 1/16W
R5015	AQ00019R	CHIP RESISTOR 47 OHM+-5% 1/16W
R5016	AQ00019R	CHIP RESISTOR 47 OHM+-5% 1/16W
R5017	0790019	CHIP RESISTOR 47 OHM+-5% 1/16W
R5018	AQ00019R	CHIP RESISTOR 47 OHM+-5% 1/16W
R5019	AQ00019R	CHIP RESISTOR 47 OHM+-5% 1/16W
R5020	0790019	CHIP RESISTOR 47 OHM+-5% 1/16W
R5021	0790019	CHIP RESISTOR 47 OHM+-5% 1/16W
R5037	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R5070	0790023	CHIP RESISTOR 82 OHM+-5% 1/16W
R5071	0790023	CHIP RESISTOR 82 OHM+-5% 1/16W
R5072	0790023	CHIP RESISTOR 82 OHM+-5% 1/16W
R5073	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R5074	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R5078	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R5079	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R5080	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5081	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5090	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R5091	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R5092	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R5093	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R5094	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R5095	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R5104	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R5105	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R5106	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R5107	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R6002	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R6003	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R6004	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R6005	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R6006	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R6008	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R6010	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R6011	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R6012	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R6014	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R6018	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R6019	0105678	CHIP RESISTOR 3.3KOHM+-1% 1/16W
R6020	0104578	CHIP RESISTOR 9.1KOHM+-1% 1/16W
R6021	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R6022	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R6023	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R6027	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R6028	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R6029	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R6030	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R6031	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R6032	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R6034	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R6035	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R6036	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R6037	0790026	CHIP RESISTOR 150 OHM+-5% 1/16W
R6038	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R6039	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R6040	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R6041	0790026	CHIP RESISTOR 150 OHM+-5% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION
R6042	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R6048	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R6053	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R6057	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R6059	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R6060	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R6061	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R6062	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R6063	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R6064	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R6066	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R6301	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R6302	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R6303	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R6305	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R6324	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R6325	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R6326	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R6401	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R6403	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R6404	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R7003	0104093	CHIP RESSISTOR 75 OHM+-5% 1/16W
R7021	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R7022	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R7025	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R7101	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R7102	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
RT2101	5040177	SEMI VARIABLE 10KOHM
RT2201	5040179	SEMI VARIABLE 47KOHM
		SEMI-CONDUCTORS
D1002	5337351	DIODE MA132WK
D1101	5337372	DIODE SB07-03C
D1501	5337352	DIODE MA132WA
D1603	5337352	DIODE MA132WA
D1604	5337354	DIODE MA133
D1605	5337354	DIODE MA133
D1701	5337351	DIODE MA132WK
D1702	5337351	DIODE MA132WK
D2101	5337372	DIODE SB07-03C
D2102	5337352	DIODE MA132WA
D2103	5337352	DIODE MA132WA
D2201	5337102	DIODE MA111
D2202	CC10531R	DIODE MA329
D2601	5337322	DIODE MA199
D2602	5337351	DIODE MA132WK
D2603	5337351	DIODE MA132WK
D2604	5337322	DIODE MA199
D2605	5337352	DIODE MA132WA
D2606	5337372	DIODE SB07-03C
D2609	5337351	DIODE MA132WK
D3001	5337351	DIODE MA132WK
D3002	5337351	DIODE MA132WK
D3003	5337351	DIODE MA132WK
D3004	5337351	DIODE MA132WK
D3005	5337352	DIODE MA132WA
D3007	5337372	DIODE SB07-03C
D3010	5337372	DIODE SB07-03C
D5001	5337451	DIODE RB715F
D6001	5337352	DIODE MA132WA
D6002	5337352	DIODE MA132WA
D6301	5337351	DIODE MA132WK
D6302	5337351	DIODE MA132WK
D6304	5337351	DIODE MA132WK

SYMBOL-NO	P-NO	DESCRIPTION
D7003	5337352	DIODE MA132WA
D7004	5337352	DIODE MA132WA
IC1001	UE11256	CCD IMAGE SENSOR ASSY
IC1101	1366681	IC HA118184F
IC1102	CK17161R	IC HD74AC367T
IC1201	CK15331R	IC NJM3414AV
IC1202	1352651	IC NJM3403AV
IC1203	1350792	IC TC4S66F
IC1301	1366804	IC MPC17AT85VMEL
IC1401	CK13521R	IC NJM2110
IC1501	CK18451U	IC HD6433042ST28X
IC1502	CK14171R	IC MX25S67MR
IC1601	CK16381U	IC HD49315AF
IC1602	CK16341U	IC HG51D041TE
IC1603	CK12061R	IC UPD16510GR
IC1701	CK13471R	IC UPC5023GS-104-E1
IC2001	CK17021U	IC HD62125AFE
IC2002	CK15601U	IC HM5241605CTT-15
IC2003	CK15601U	IC HM5241605CTT-15
IC2101	CK10522U	IC IR3Y18A
IC2102	CK14691R	IC NJM4556AM
IC2201	CK15351R	IC CM7012L3-T4
IC2202	1351051	IC NJM2107F
IC2601	CK15211R	IC BA9742FV
IC2602	1354202	IC SC7S02F
IC3001	CK17013U	IC UPD75P0016GB-3BS-MTX
IC3003	1352582	IC S-84206F
IC3004	1365231	IC M62354GP
IC3005	CK16991R	IC UPD6461GS
IC4001	CK16481U	IC HD6417708
IC4002	CK15601U	IC HM5241605CTT-15
IC4003	CK15601U	IC HM5241605CTT-15
IC4004	JP19902	IC MBM29LV400B-12PFTN
IC4005	CK17171R	IC HD74HC86T
IC4006	1354202	IC SC7S02F
IC5001	CK16491U	IC SLA2019F1G
IC5002	CA10921R	TRANSISTOR UPA1700G
IC6001	CK16461U	IC TDA1309H
IC6002	1366241	IC BA3308F
IC6003	CK16291R	IC NJM3404AV-TE1
IC6004	CK16471R	IC TDA7052AT
IC6305	1366081	IC HD74HCT125T
IC6401	1366651	IC BA6417F
IC6402	1365592	IC RN5VT28AA-TL
IC7001	CW10371	IC CE0835
Q1001	5328221	TRANSISTOR 2SC2620-QC
Q1101	1323292	TRANSISTOR 2SA1774
Q1102	1323292	TRANSISTOR 2SA1774
Q1103	5328221	TRANSISTOR 2SC2620-QC
Q1104	1323292	TRANSISTOR 2SA1774
Q1201	1323253	TRANSISTOR XP4401
Q1202	1323291	TRANSISTOR 2SC4617
Q1203	1323181	TRANSISTOR XP4213
Q1204	1323291	TRANSISTOR 2SC4617
Q1501	1323231	TRANSISTOR 2SB1462
Q1502	1323271	TRANSISTOR DTC144EE
Q1601	1323292	TRANSISTOR 2SA1774
Q1602	1323291	TRANSISTOR 2SC4617
Q1603	1323292	TRANSISTOR 2SA1774
Q1604	1323292	TRANSISTOR 2SA1774
Q1605	1323292	TRANSISTOR 2SA1774
Q1606	1323291	TRANSISTOR 2SC4617
Q1608	1323251	TRANSISTOR XP4601
Q1611	1323292	TRANSISTOR 2SA1774
Q1701	1323271	TRANSISTOR DTC144EE

SYMBOL-NO	P-NO	DESCRIPTION
Q1702	1323301	TRANSISTOR 2SB1219
Q1703	1323271	TRANSISTOR DTC144EE
Q1704	1323271	TRANSISTOR DTC144EE
Q1707	1323292	TRANSISTOR 2SA1774
Q1708	1323251	TRANSISTOR XP4601
Q1709	1323291	TRANSISTOR 2SC4617
Q2601	CA10271R	TRANSISTOR 2SB1424
Q2602	1323781	TRANSISTOR 2SK1764
Q2603	1323293	TRANSISTOR 2SC4617 (R/S)
Q2604	1323271	TRANSISTOR DTC144EE
Q2605	1323271	TRANSISTOR DTC144EE
Q2607	1323781	TRANSISTOR 2SK1764
Q2608	1323294	TRANSISTOR 2SA1774RS
Q2609	CA10271R	TRANSISTOR 2SB1424
Q2610	1323271	TRANSISTOR DTC144EE
Q2612	1323293	TRANSISTOR 2SC4617 (R/S)
Q3001	1323251	TRANSISTOR XP4601
Q3005	5326462	TRANSISTOR XN4501A
Q5001	1323271	TRANSISTOR DTC144EE
Q5002	1323271	TRANSISTOR DTC144EE
Q5004	1323276	TRANSISTOR DTA114EE
Q5005	1323276	TRANSISTOR DTA114EE
Q5006	1323276	TRANSISTOR DTA114EE
Q5008	1323277	TRANSISTOR DTC114EE
Q5009	1323277	TRANSISTOR DTC114EE
Q5010	1323271	TRANSISTOR DTC144EE
Q5011	1323271	TRANSISTOR DTC144EE
Q6002	1323321	TRANSISTOR 2SD2216
Q6003	1323231	TRANSISTOR 2SB1462
Q6004	1323321	TRANSISTOR 2SD2216
Q6007	1323321	TRANSISTOR 2SD2216
Q6008	1323081	TRANSISTOR 2SA1036K
Q6009	1323277	TRANSISTOR DTC114EE
Q6401	1323271	TRANSISTOR DTC144EE
Q6402	CA10271R	TRANSISTOR 2SB1424
Q7001	1323271	TRANSISTOR DTC144EE
Q7002	1323271	TRANSISTOR DTC144EE
TH4001	CE10111R	THERMISTOR NTH5G42B10
ZD2101	CC10441R	ZUNER DIODE MA3047M
ZD6401	CC10439R	DIODE MA3047L
		TRANSFORMERS
T2601	5148338	TRANS
T2602	BC10151R	TRANS, INVERTER
		COILS
L1101	BA10334R	COIL 10UH
L1106	BA10334R	COIL 10UH
L1301	0773161	COIL 3.3UH
L1501	0773154	COIL 1.0UH
L1502	0773154	COIL 1.0UH
L1601	BA10334R	COIL 10UH
L1603	5172403	FILTER
L1701	BA10334R	COIL 10UH
L2001	0773082	COIL 1.5UH
L2101	BA10337R	COIL 100UH
L2102	0773172	COIL 22UH
L2103	BA10337R	COIL 100UH
L2104	0773154	COIL 1.0UH
L2105	0773176	COIL 47UH
L2111	0773176	COIL 47UH
L2112	BA10337R	COIL 100UH
L2113	0773176	COIL 47UH
L2114	0773176	COIL 47UH
L2115	BA10334R	COIL 10UH
L2201	BA10337R	COIL 100UH
L2203	0773173	COIL
L2205	0773174	COIL 33UH
L2601	BA10337R	COIL 100UH
L2602	BA10337R	COIL 100UH
L2604	BA10337R	COIL 100UH
L2605	BA10127R	COIL 10UH
L2607	BA10129R	COIL 47UH
L3001	5129272	COIL 15UH
L3002	BA10334R	COIL 10UH
L4001	BA10334R	COIL 10UH
L6001	BA10339R	COIL 330UH
L6002	BA10338R	COIL 220UH
L6003	0773176	COIL 47UH
L7001	BV10201R	CHOKE COIL
		CRYSTALS
X2001	BL10441R	CRYSTAL
X2101	BL10111R	CRYSTAL
X3001	BL10311R	CRYSTAL
X3002	BL10461R	CRYSTAL
		MISCELLANEOUS
⚠BA7001	FS10541	BATTERY
BL1650	BE10393R	FILTER, LC
BL1651	BE10393R	FILTER, LC
BL1652	BE10393R	FILTER, LC
BL1653	BE10393R	FILTER, LC
BL1654	BE10393R	FILTER, LC
BL7007	BE10392R	FILTER, LC
BL7008	BE10392R	FILTER, LC
BL7011	BE10392R	FILTER, LC
BL7015	BE10392R	FILTER, LC
⚠F7001	5723232	FUSE 2A
⚠F7002	5723232	FUSE 2A
JK2601	5693501	JACK, DC
JK7001	EY10521	JACK, PIN
PG1101	EA10407R	CONNECTOR
PG1201	EA10369R	PLUG
PG1301	EA10375R	PLUG
PG1401	5669191	PLUG
PG1601	EA10377R	PLUG
PG1602	EA10375R	PLUG
PG2102	EA10379R	PLUG
PG2601	5669169	PLUG
PG2602	5669171	MINI PLUG
PG2603	EA10401R	PLUG
PG3001	EA10379R	PLUG
PG3002	EA10376R	PLUG
PG3003	5669191	PLUG
PG5001	EA10921	PLUG
PG5002	EA10901R	PLUG
PG5010	EA10961	PLUG
PG6001	EA10379R	PLUG
PG6401	5669191	PLUG
PG7002	EA10911R	PLUG
PG7004	5669171	MINI PLUG
PG7005	EA10371R	PLUG
⚠QF1301	FM10112R	FUSE 0.2A
⚠QF1601	FM10111R	FUSE 0.4A
S7001	1742011	SWITCH

CHAPTER 5 SCHEMATIC, CIRCUIT BOARD AND BLOCK DIAGRAMS

Cautions when using schematic diagrams

Caution for safety

The parts marked ⚠ are critical for safety. Be sure to use the specified parts to ensure safety when replacing them.

1. Values in schematic diagrams

The values, dielectric strength (power capacitance) and tolerances of the resistors (excluding variable resistors) and capacitors are indicated in the schematic diagrams using abbreviations.

[Resistors]

Item	Indication
Value	No indication ..... Ω K ..... k Ω M ..... M Ω
Tolerance	No indication ..... ±5% (All tolerances other than ± 5% are indicated in the schematic diagrams)
Power capacitance	No indication ..... 1/8W (1/16W for leadless resistors without indication) All capacitances other than the above are indicated in the schematic diagrams.

[Capacitors]

Item	Indication
Value	No indication ..... μF P ..... pF
Dielectric strength	No indication ..... 50V (All dielectric strengths other than 50V are indicated in the schematic diagrams.)

[Coils]

Item	Indication
Value	μ ..... μH m ..... mH

Cautions when using circuit board diagrams

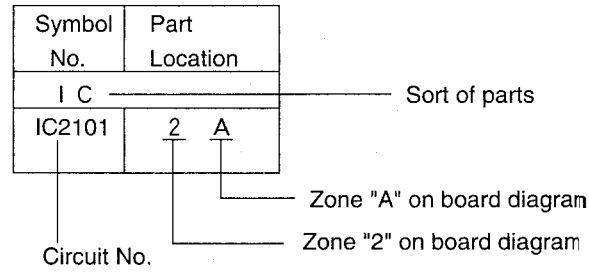
1. Identifications of sides A/B in circuit board diagrams

1) Board having a pattern on one side and parts on both sides.
   - Side A: Shows discrete parts, viewed from the pattern side.
   - Side B: Shows leadless parts, viewed from the pattern side.
2) Board having patterns on both sides and parts on both sides.
   - Side A: Shows parts and patterns which can be seen when the case is opened.
   - Side B: Shows parts and the pattern on the back of side A.

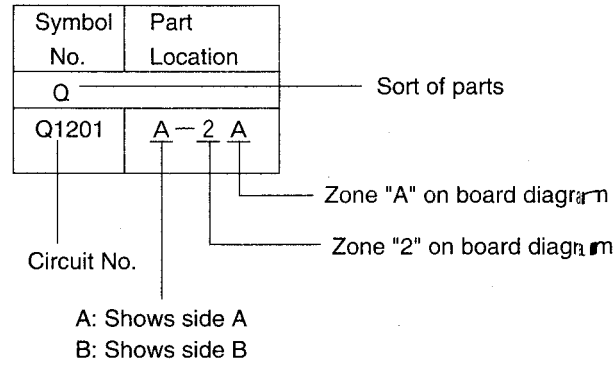
2. Table for indexing locations of parts

This table shows locations of each part on the circuit board diagrams. The locations are indicated using the guide scales on the external lines of diagrams.

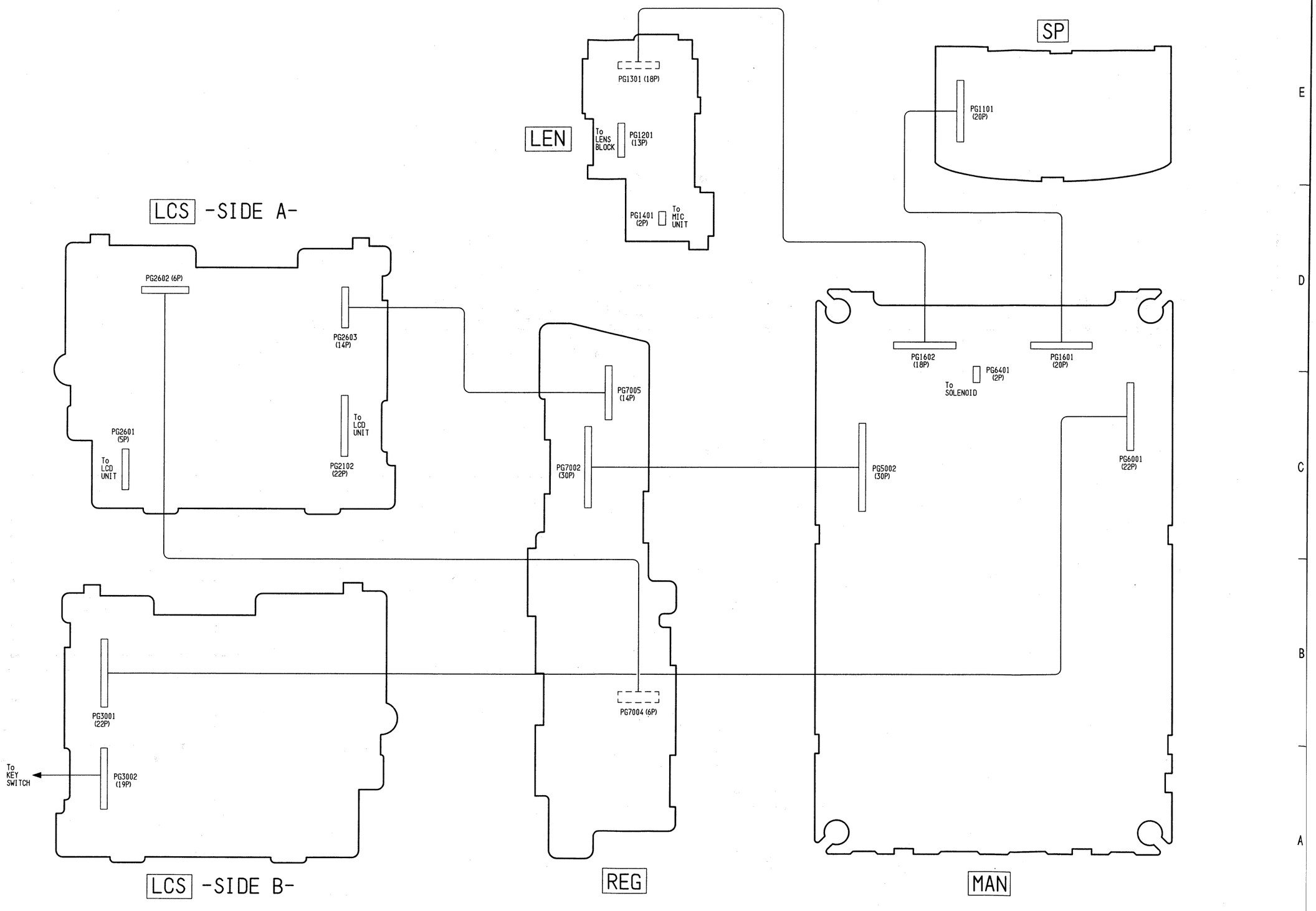
1) In case of one-layer board



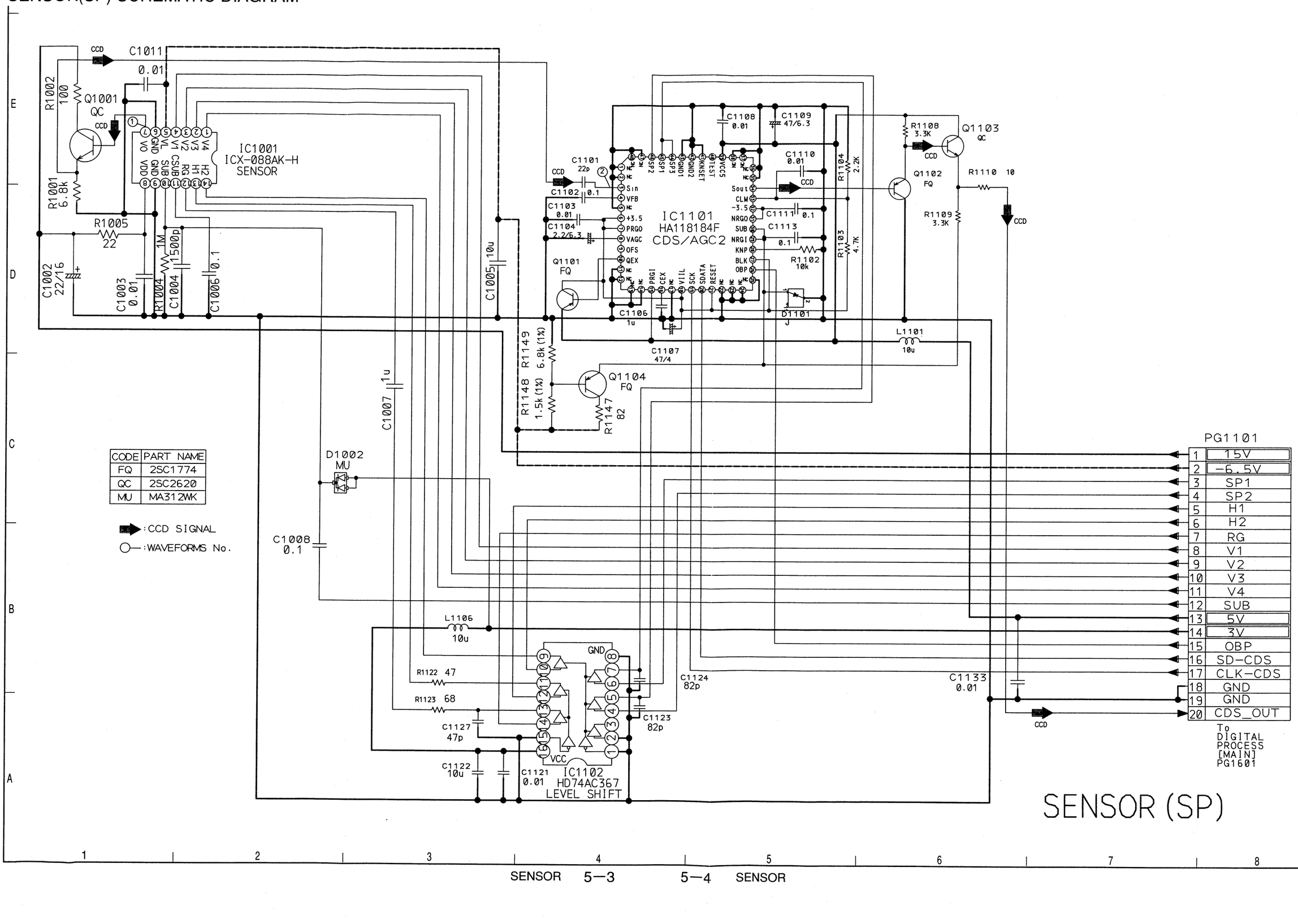
2) In case of side A/B indication board



INTERNAL WIRING DIAGRAM



SENSOR(SP) SCHEMATIC DIAGRAM



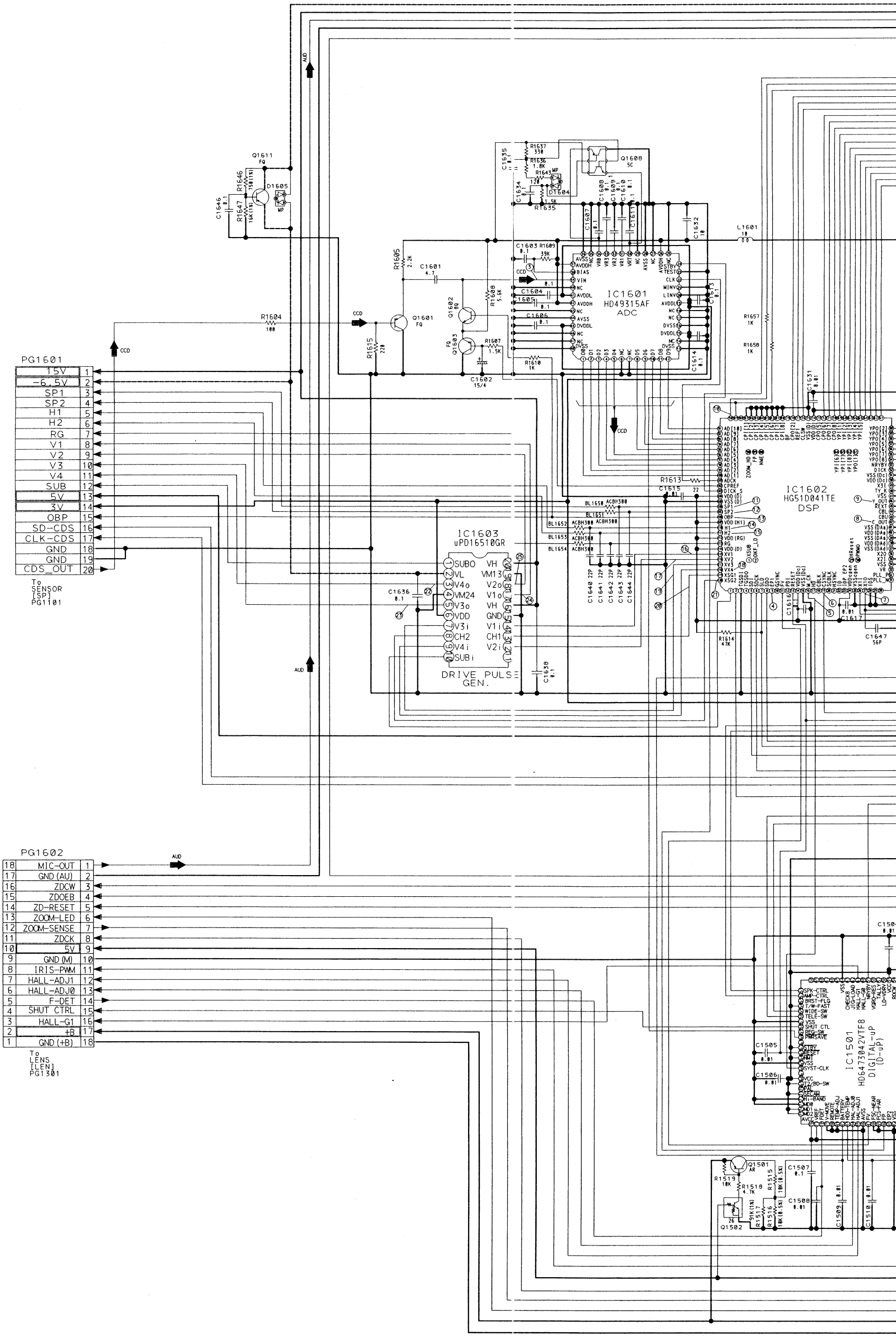
CODE	PART NAME
FQ	2SC1774
QC	2SC2620
MU	MA312WK

: CCD SIGNAL

: WAVEFORMS No.

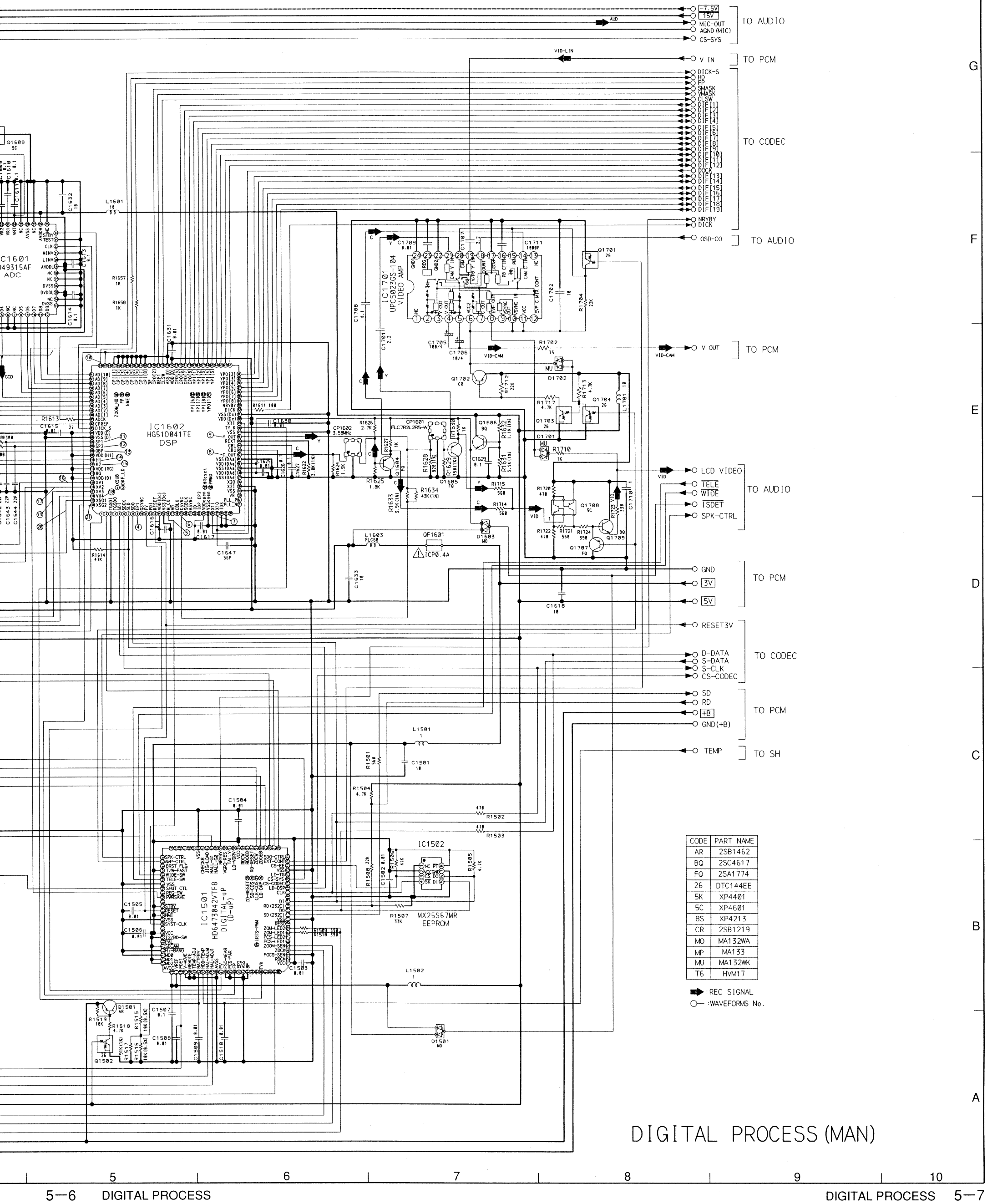
SENSOR (SP)

DIGITAL PROCESS (MAN) SCHEMATIC DIAGRAM



1 2 3 4 5

DIGITAL PROCESS 5—5 5—6 DIGITAL PROCESS


-7.5V
15V
MIC-OUT
AGND (MIC)
CS-SYS
TO AUDIO
AUD
VID-LIN
V IN
TO PCM
DICK-S
HD
FP
SMASK
VMASK
CLSW
DIF[1]
DIF[2]
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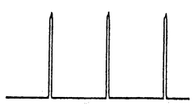
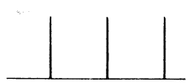
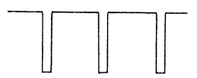
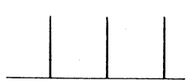
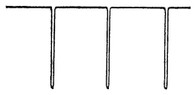
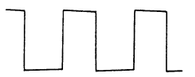
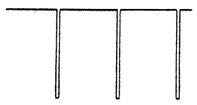
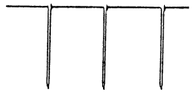
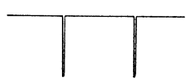
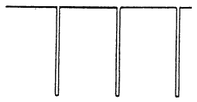
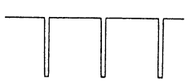
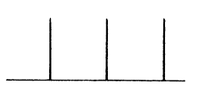
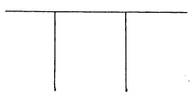
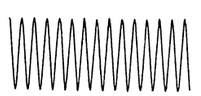
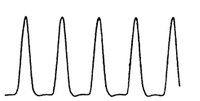
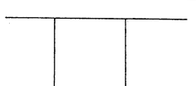
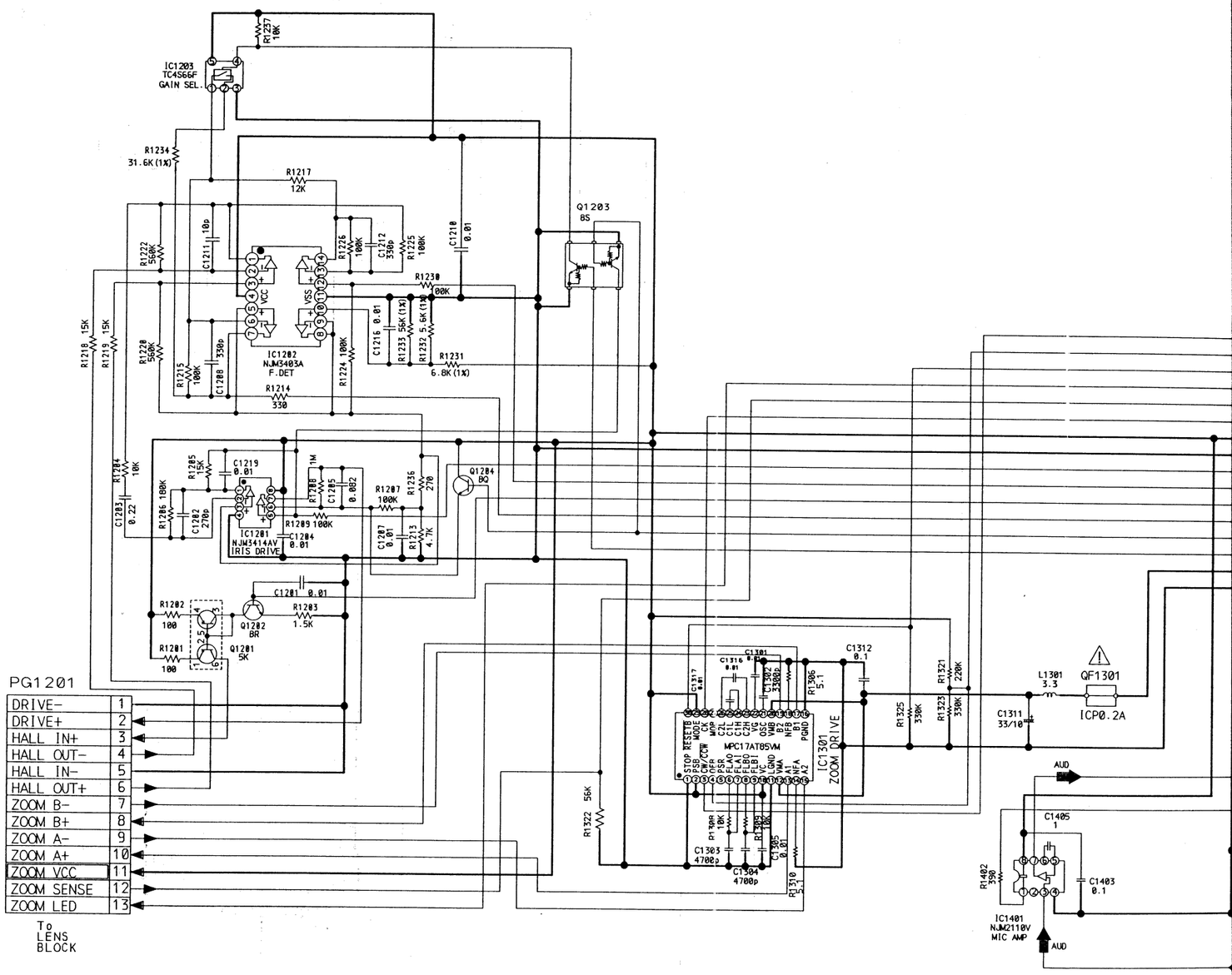
DIF[19]
NRYBY
DICK
TO CODEC
OSD-CO
TO AUDIO
V OUT
TO PCM
VID-CAM
LCD VIDEO
TELE
WIDE
ISDET
SPK-CTRL
TO AUDIO
GND
3V
5V
TO PCM
RESET3V
D-DATA
S-DATA
S-CLK
CS-CODEC
TO CODEC
SD
RD
+B
GND(+B)
TO PCM
TEMP
TO SH
IC1701
UPC5023GS-104
VIDEO AMP
IC1602
HG51D041TE
DSP
IC1501
HD6473042VTF8
DIGITAL-uP
(D-uP)
IC1502
MX25S67MR
EEPROM
QF1601
TCP0.4A
CP1601
FLC7R2L2RS-W
CP1602
3.58MHz
FL601
CCD
ZOOM_HD
FP
NMI
IRIS-PWM
CODE | PART NAME
AR | 2SB1462
BQ | 2SC4617
FQ | 2SA1774
26 | DTC144EE
5K | XP4401
5C | XP4601
8S | XP4213
CR | 2SB1219
MO | MA132WA
MP | MA133
MU | MA132WK
T6 | HVM17
: REC SIGNAL
: WAVEFORMS No.
DIGITAL PROCESS (MAN)

CAMERA SECTION WAVEFORMS

1-A IC1001-7 700mVp-p 0.2V/20.0 μ sec. cm COLOR CHART	8-A IC1602-42 730mVp-p 0.2V/20.0 μ sec. cm COLOR CHART	15-A IC1602-111 6.0Vp-p 2V/100nsec. cm COLOR CHART	22-A IC1603-3 8.0Vp-p 2V/20.0 μ sec. cm COLOR CHART
			
2-A IC1101-3 400mVp-p 0.2V/20.0 μ sec. cm COLOR CHART	9-A IC1602-46 1.0Vp-p 0.2V/20.0 μ sec. cm COLOR CHART	16-A IC1602-115 3.4Vp-p 1V/20.0 μ sec. cm COLOR CHART	23-A IC1603-5 7.0Vp-p 2V/20.0 μ sec. cm COLOR CHART
			
3-A IC1601-39 1.6Vp-p 0.5V/20.0 μ sec. cm COLOR CHART	10-A IC1602-90 3.4Vp-p 1V/20.0 μ sec. cm COLOR CHART	17-A IC1602-116 3.4Vp-p 1V/20.0 μ sec. cm COLOR CHART	24-A IC1603-17 7.0Vp-p 2V/20.0 μ sec. cm COLOR CHART
			
4-A IC1602-9 3.5Vp-p 1V/20.0 μ sec. cm COLOR CHART	11-A IC1602-106 3.5Vp-p 1V/50.0nsec. cm COLOR CHART	18-A IC1602-117 3.4Vp-p 1V/20.0 μ sec. cm COLOR CHART	25-A IC1603-18 8.0Vp-p 2V/20.0 μ sec. cm COLOR CHART
			
5-A IC1602-16 3.4Vp-p 1V/5.0msec. cm COLOR CHART	12-A IC1602-107 3.5Vp-p 1V/50.0nsec. cm COLOR CHART	19-A IC1602-118 3.4Vp-p 1V/20.0 μ sec. cm COLOR CHART	
			
6-A IC1602-16 3.4Vp-p 1V/20.0 μ sec. cm COLOR CHART	13-A IC1602-108 3.4Vp-p 1V/20.0 μ sec. cm COLOR CHART	20-A IC1602-119 3.4Vp-p 1V/5.0msec. cm COLOR CHART	
			
7-A IC1602-27 1.8Vp-p 0.5V/20.0nsec. cm COLOR CHART	14-A IC1602-110 6.0Vp-p 2V/100nsec. cm COLOR CHART	21-A IC1602-120 3.4Vp-p 1V/5.0msec. cm COLOR CHART	
			

LENS(LEN) SCHEMATIC DIAGRAM



LENS(LEN) SCHEMATIC DIAGRAM

CODE	PART NAME
BR	2SC4617RS
BQ	2SC4617
5K	XP4401
8S	XP4213

: REC SIGNAL

PG1301

18	MIC-OUT	1
17	GND (AU)	2
16	ZDCW	3
15	ZDOEB	4
14	ZD-RESET	5
13	ZOOM-LED	6
12	ZOOM-SENSE	7
11	ZDCK	8
10	5V	9
9	GND (M)	10
8	IRIS-PWM	11
7	HALL-ADJ1	12
6	HALL-ADJ0	13
5	F-DET	14
4	SHUT CTRL	15
3	HALL-G1	16
2	+B	17
1	GND (+B)	18

To DIGITAL PROCESS [MAIN] PG1602

PG1201

DRIVE-	1
DRIVE+	2
HALL IN+	3
HALL OUT-	4
HALL IN-	5
HALL OUT+	6
ZOOM B-	7
ZOOM B+	8
ZOOM A-	9
ZOOM A+	10
ZOOM VCC	11
ZOOM SENSE	12
ZOOM LED	13

To LENS BLOCK

PG1401

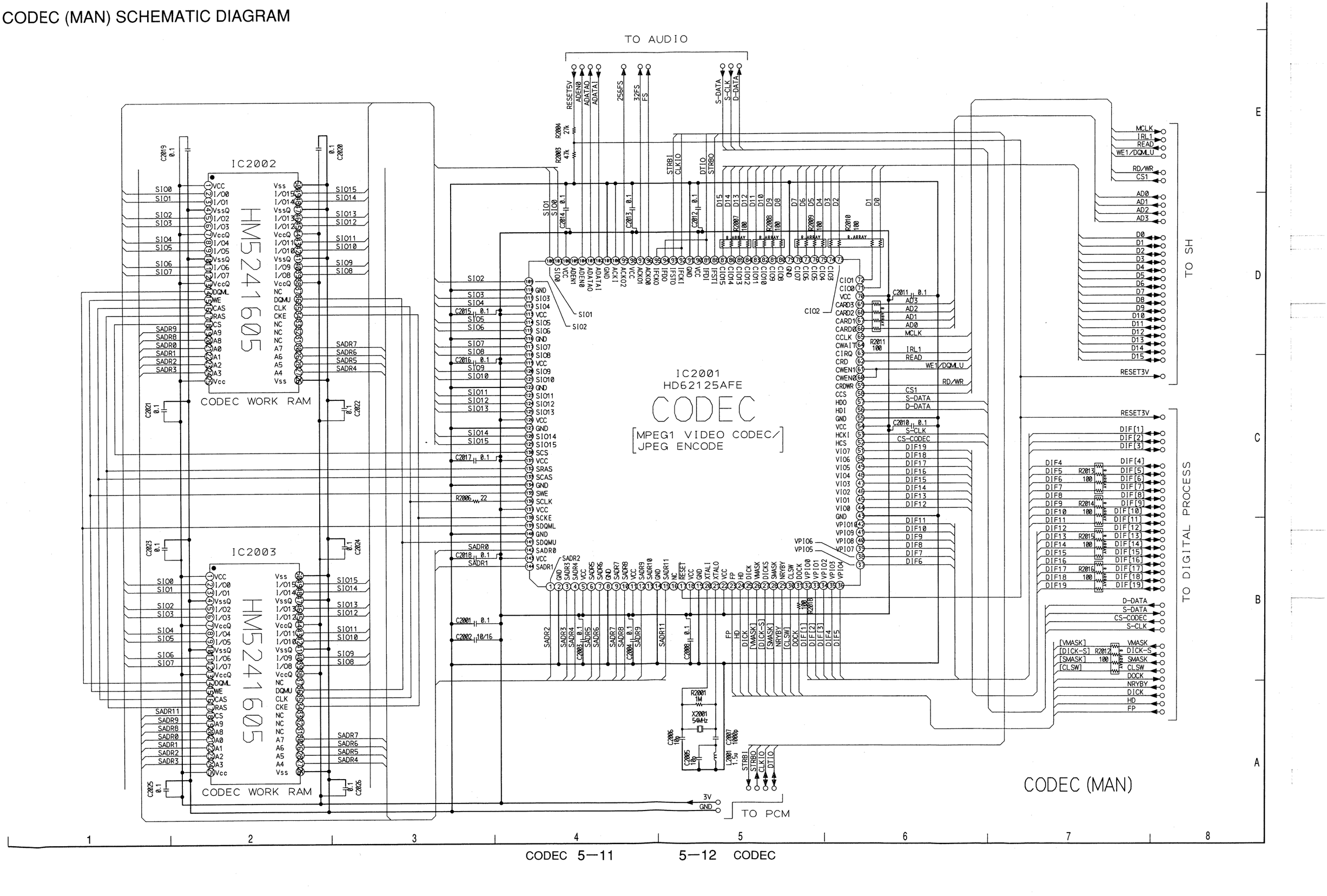
1	MIC-IN
2	GND (AU)

To MIC UNIT

IC1203 TC4S66F GAIN SEL.
IC1202 NJM5403A F.DET
IC1281 NJM3414AV IRIS DRIVE
IC1301 MPC17AT85VM ZOOM DRIVE
IC1401 N-JM2119V MIC AMP
Q1203 8S
Q1204 BQ
Q1202 BR
Q1201 5K
QF1301 ICP0.2A

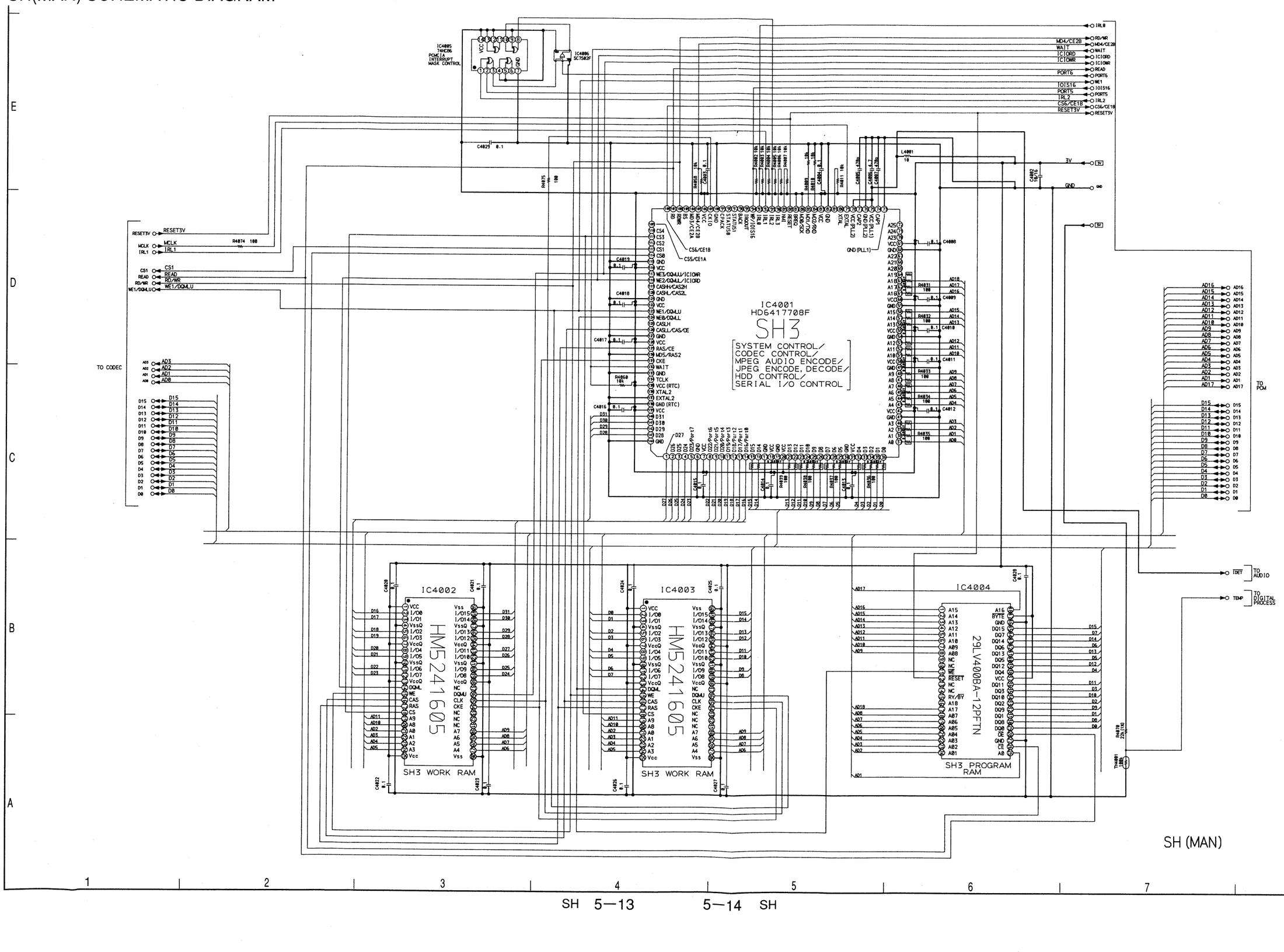
LENS (LEN)

CODEC (MAN) SCHEMATIC DIAGRAM

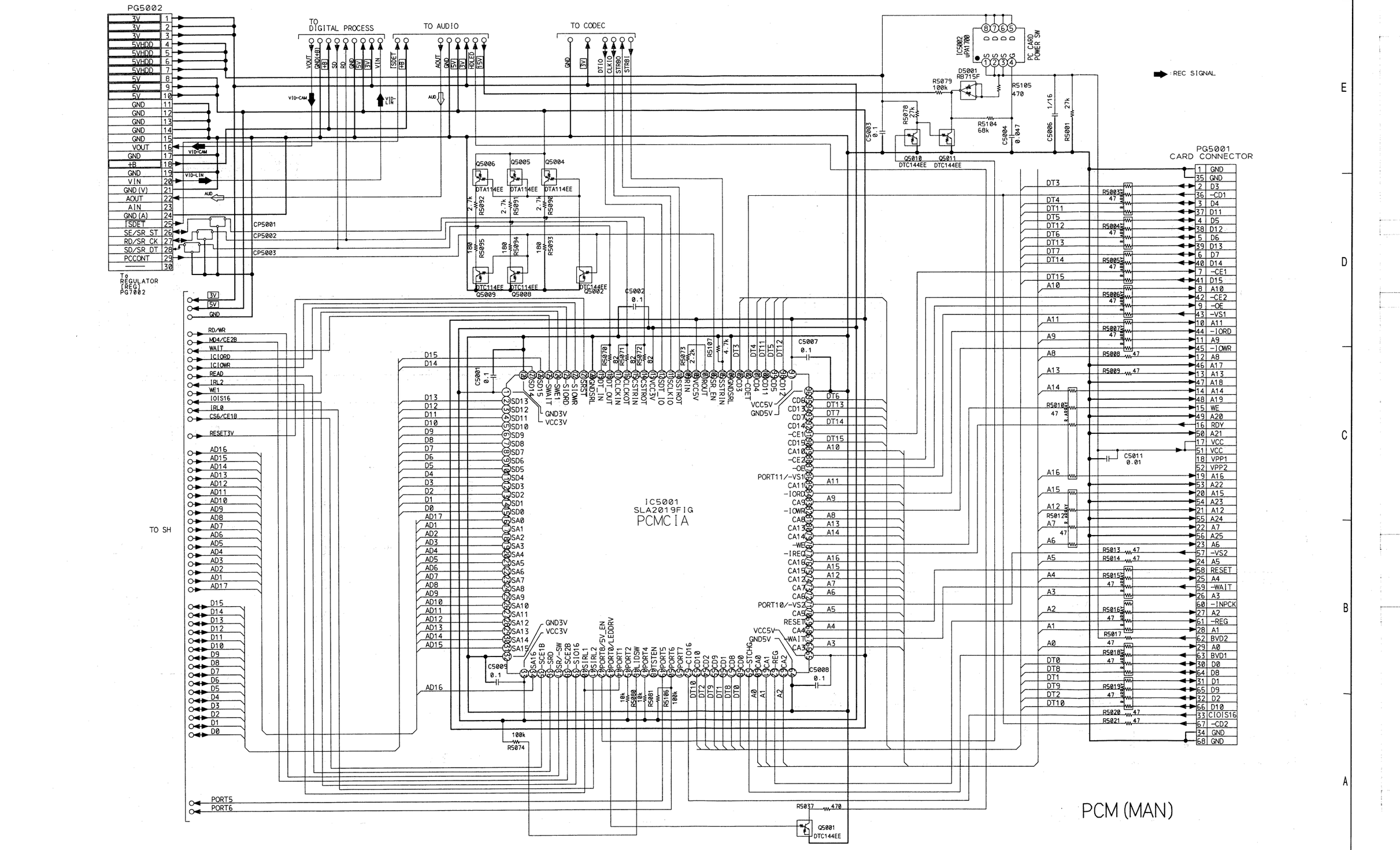


CODEC 5—11 5—12 CODEC

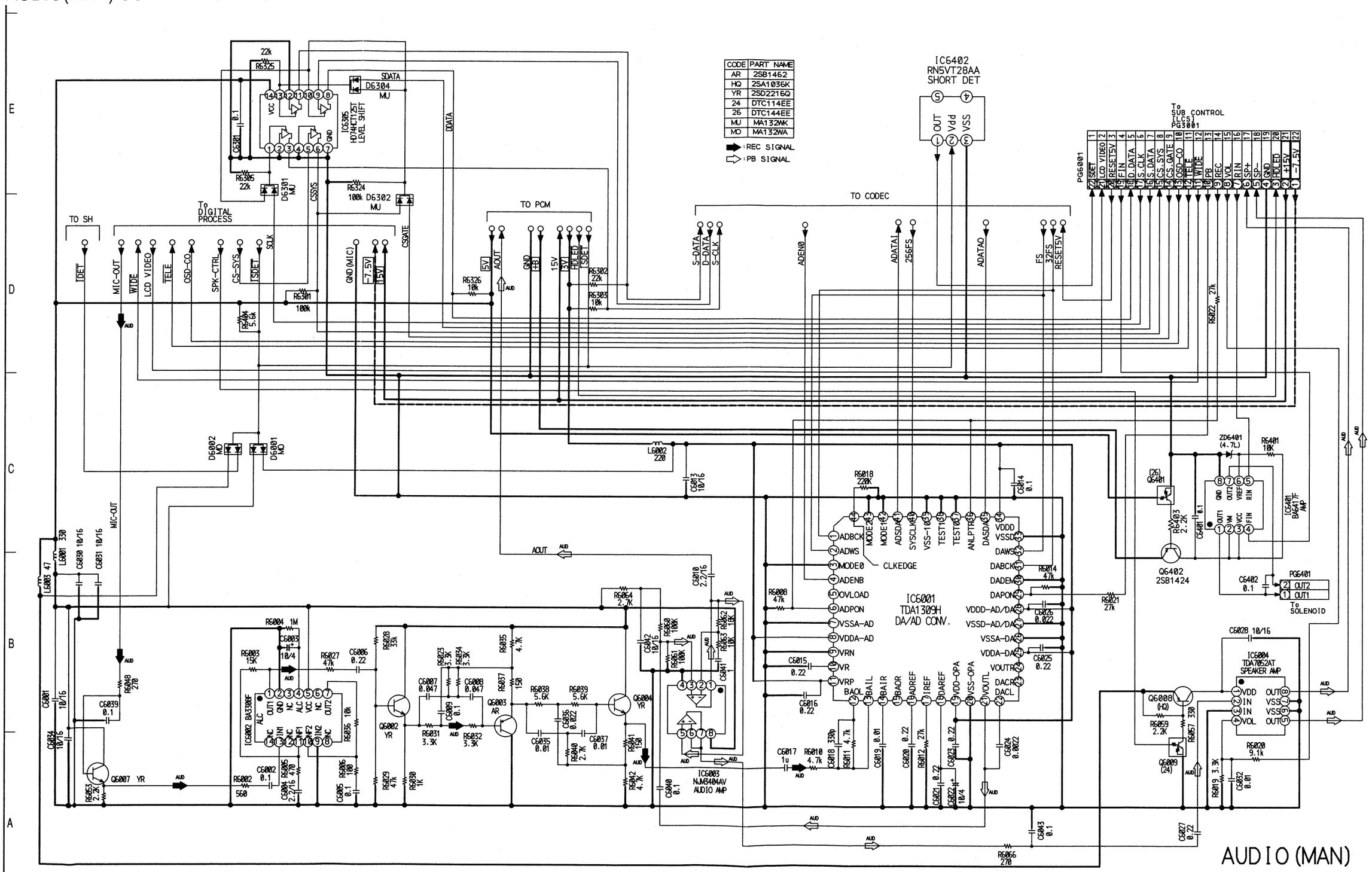
SH(MAN) SCHEMATIC DIAGRAM



PCM(MAN) SCHEMATIC DIAGRAM

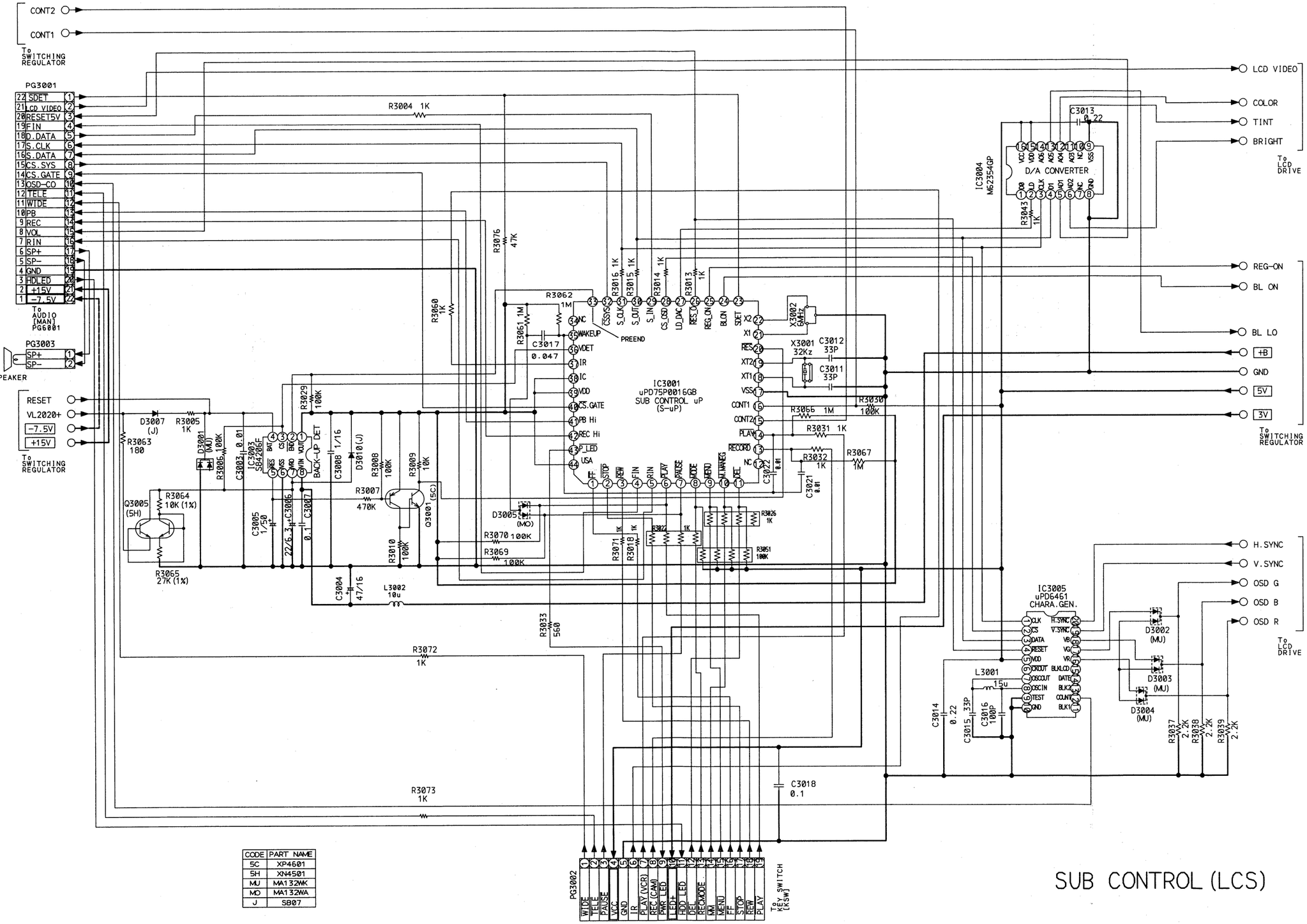


AUDIO(MAN) SCHEMATIC DIAGRAM



AUDIO (MAN)

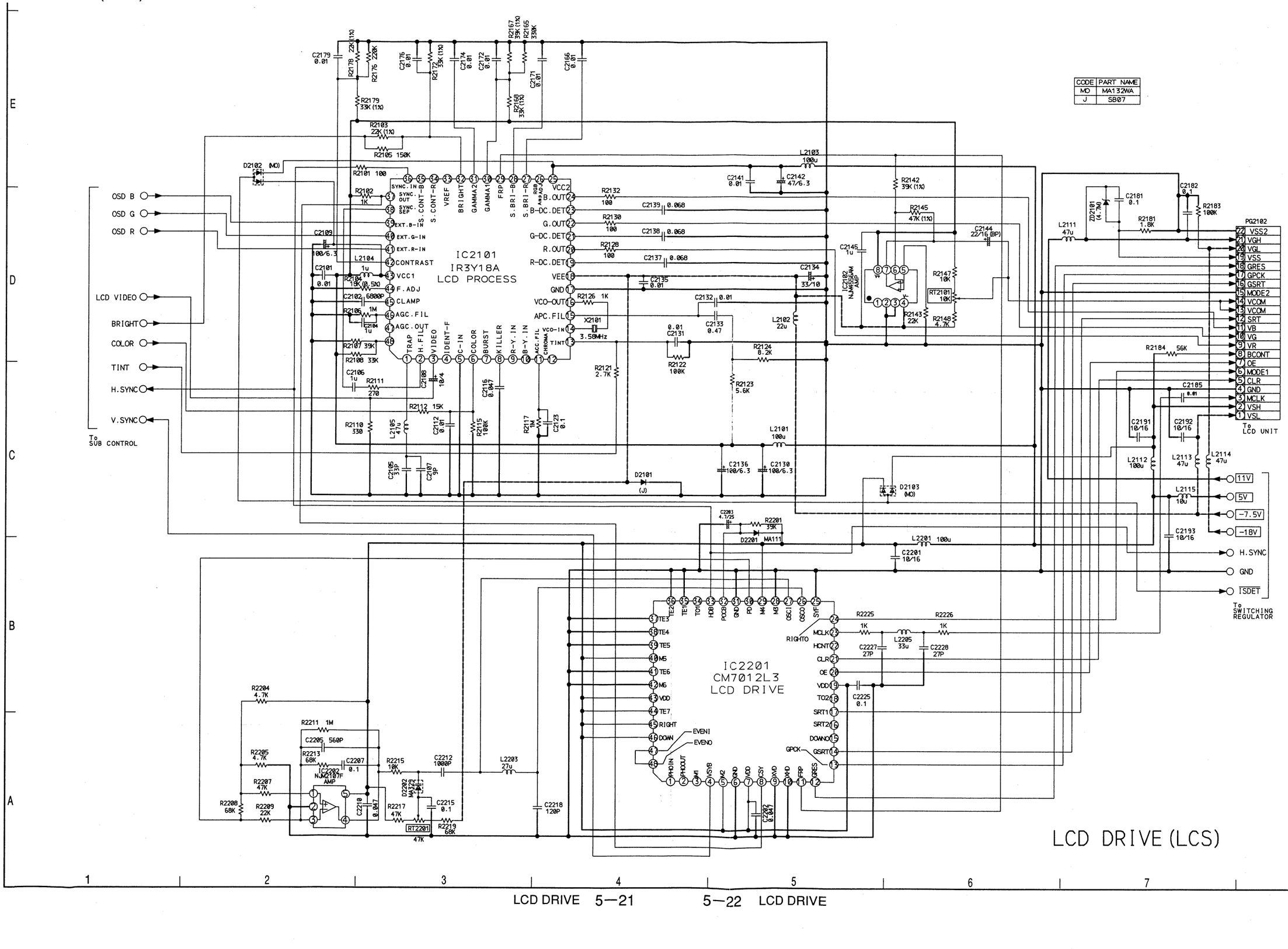
SUB CONTROL(LCS) SCHEMATIC DIAGRAM



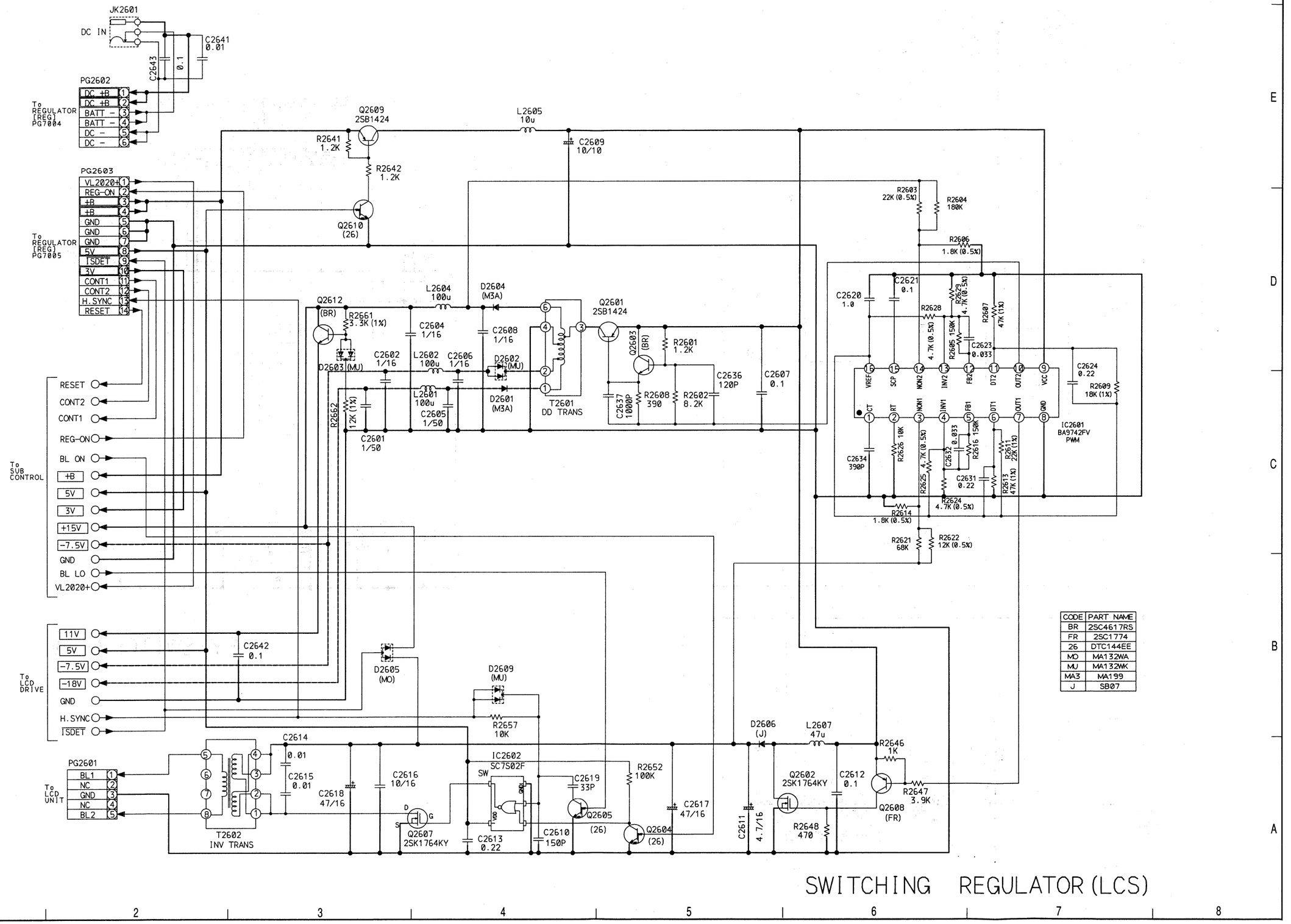
CODE	PART NAME
5C	XP4501
5H	XN4501
MJ	MA132WK
MO	MA132WA
J	S807

SUB CONTROL (LCS)

LCD DRIVE(LCS) SCHEMATIC DIAGRAM



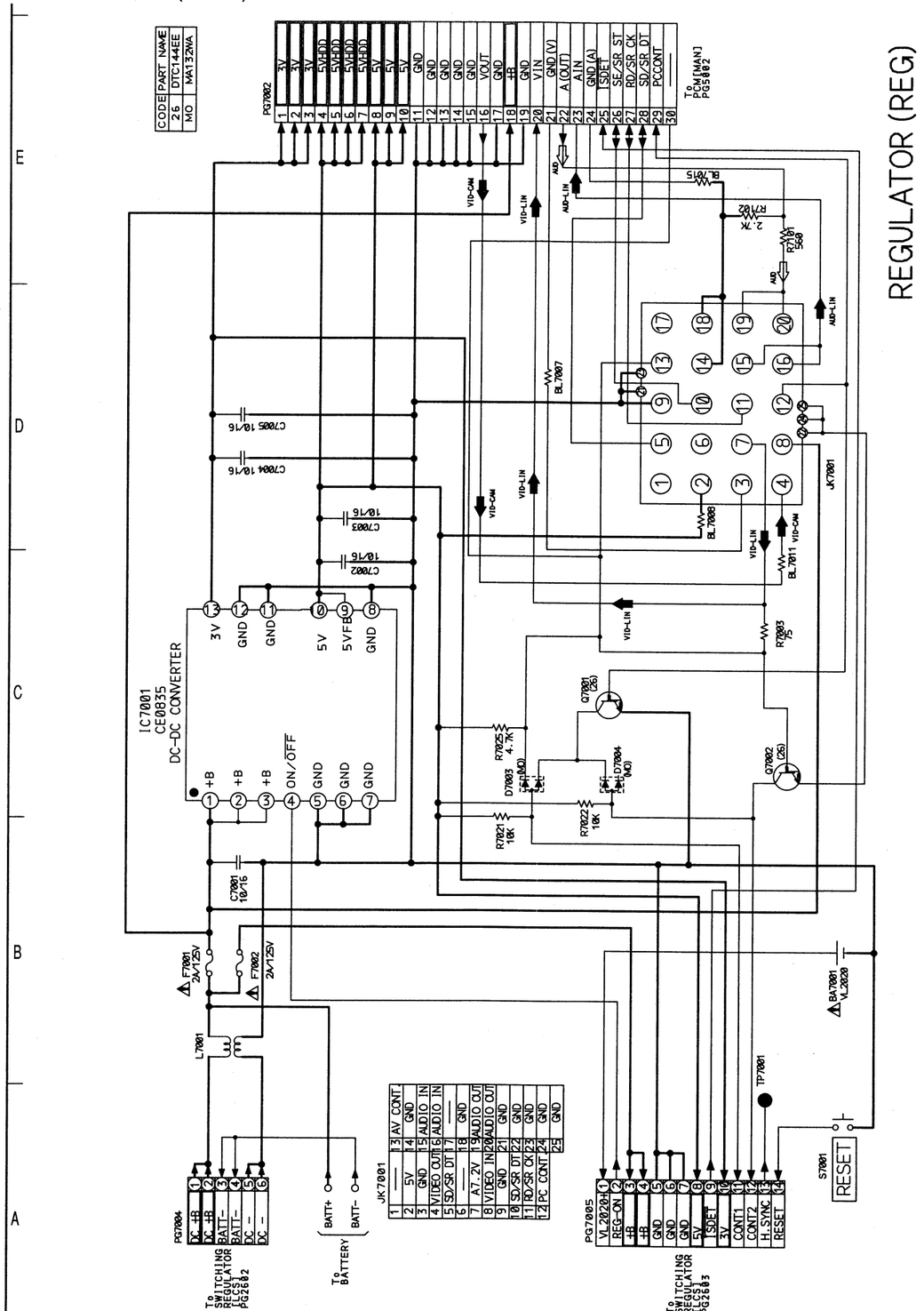
SWITCHING REGULATOR(LCS) SCHEMATIC DIAGRAM



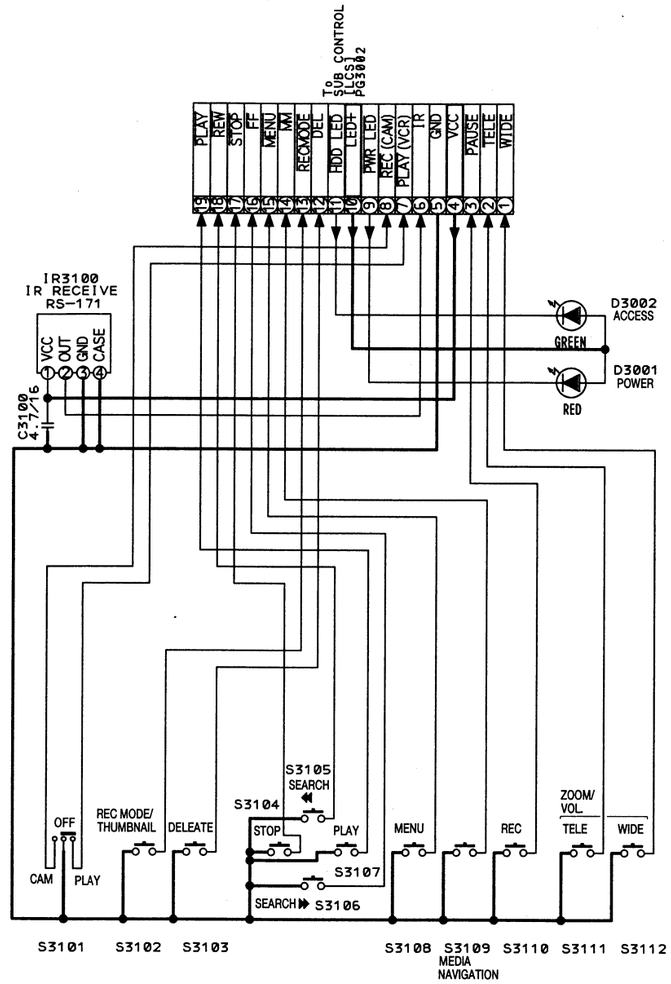
CODE	PART NAME
BR	2SC4617RS
FR	2SC1774
26	DTC144EE
MO	MA132WA
MU	MA132WK
MA3	MA199
J	SB07

SWITCHING REGULATOR (LCS)

REGULATOR(REG) SCHEMATIC DIAGRAM



KEY SWITCH(KSW) SCHEMATIC DIAGRAM



KEY SWITCH (KSW)

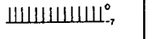
VOLTAGE CHART

IC's

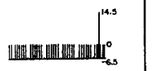
IC1001	
P No.	REC
1	-
2	-
3	-
4	-
5	-6.6
6	0.1
7	9.7
8	15.0
9	0.1
10	-
11	7.3
12	-
13	-
14	-

IC1001

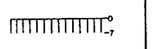
Pin 1



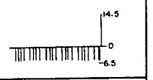
Pin 2



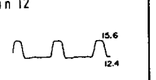
Pin 3



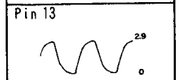
Pin 4



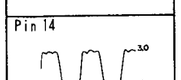
Pin 12



Pin 13



Pin 14



IC1101	
P No.	REC
1	-
2	-
3	-
4	0
5	-
6	3.3
7	3.3
8	1.4
9	0.9
10	4.1
11	-
12	-
13	-
14	-
15	4.8
16	2.4
17	-
18	3.3
19	-
20	-
21	3.3
22	-
23	-
24	-
25	-
26	-
27	3.3
28	0
29	-4.7
30	-4.7
31	-3.3
32	-3.3
33	1.1
34	0.1
35	-
36	-
37	-
38	-
39	4.8
40	0
41	0
42	0
43	0
44	-
45	-
46	-
47	-
48	-

IC1102	
P No.	REC
1	0
2	0
3	0
4	-
5	-
6	-
7	-
8	0
9	-
10	-
11	-
12	-
13	-
14	-
15	0
16	3.0

IC1201	
P No.	REC
1	2.0
2	2.0
3	2.0
4	0
5	2.0
6	2.0
7	2.3
8	4.8

IC1202	
P No.	REC
1	2.0
2	0.9
3	0.9
4	4.8
5	2.0
6	2.0
7	1.9
8	2.0
9	2.0
10	2.0
11	0
12	2.0
13	2.0
14	2.0

IC1203	
P No.	REC
1	2.0
2	2.0
3	0
4	0
5	4.8

IC1301	
P No.	REC
1	0
2	4.8
3	0
4	3.0
5	1.6
6	0.3
7	0.3
8	0.3
9	0.3
10	4.8
11	0
12	6.8
13	0
14	0
15	0
16	0
17	0
18	0
19	0
20	6.8
21	-
22	14.0
23	-
24	-
25	-
26	-
27	4.8
28	0
29	4.8
30	3.0

IC1401	
P No.	REC
1	2.5
2	4.8
3	1.3
4	0
5	1.4
6	0
7	1.3
8	4.8

IC1501	
P No.	REC
1	3.1
2	0
3	0
4	* 3.1
5	* 3.6
6	3.1
7	3.1
8	-
9	-
10	0
11	0
12	-
13	-
14	-
15	-
16	0
17	-
18	-
19	-
20	-
21	3.1
22	0
23	-
24	3.1
25	3.1
26	3.1
27	-
28	-
29	3.1
30	3.1
31	3.1/0
32	0
33	3.1
34	0
35	3.1
36	0
37	0
38	0
39	0
40	0
41	3.1
42	-
43	-
44	0
45	0
46	0
47	0
48	0
49	0
50	0
51	0
52	0
53	0
54	3.1
55	3.1
56	3.1
57	0
58	0
59	0
60	0

IC1501	
P No.	REC
61	-
62	3.1
63	3.1
64	3.1
65	0
66	-
67	-
68	3.1
69	3.1
70	3.1
71	3.1
72	0
73	0
74	3.1
75	3.1
76	4.8
77	4.8
78	3.1
79	0
80	0
81	0
82	3.5
83	3.2
84	2.3
85	0
86	0
87	-
88	0
89	0
90	-
91	0
92	0
93	0
94	0
95	0
96	0
97	-
98	0
99	-
100	0

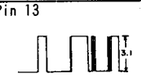
*:
When ZOOM is operated..

IC1501

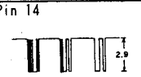
Pin 8, 9

Pin 12

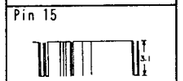
Pin 13



Pin 14

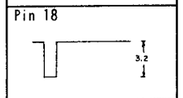


Pin 15



Pin 17

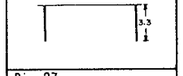
Pin 18



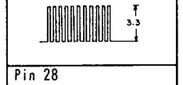
Pin 19

Pin 20

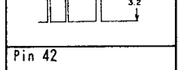
Pin 23



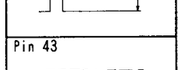
Pin 27



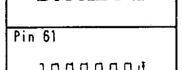
Pin 28



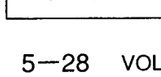
Pin 42



Pin 43



Pin 61



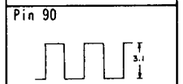
IC1501

Pin 66

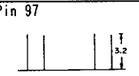
Pin 67

Pin 87

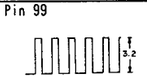
Pin 90



Pin 97



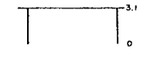
Pin 99



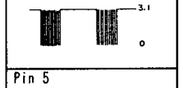
IC1502	
P No.	REC
1	0
2	3.1
3	-
4	-
5	-
6	-
7	0
8	3.1

IC1502

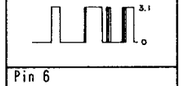
Pin 3



Pin 4



Pin 5



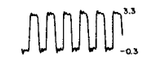
Pin 6

IC1601	
P No.	REC
1	-
2	-
3	-
4	-
5	-
6	0
7	0
8	-
9	-
10	-
11	-
12	-
13	0
14	0
15	3.1
16	0
17	0
18	0
19	3.1
20	0
21	0
22	-
23	0
24	0
25	0
26	4.8
27	0
28	0
29	0
30	3.9
31	3.0
32	2.5
33	2.3
34	2.1
35	0
36	0
37	4.8
38	1.1
39	-
40	0
41	3.1
42	4.8
43	0
44	0
45	3.1
46	0
47	0
48	0

IC1601

Pin 1~5, 8~12

Pin 22



Pin 39

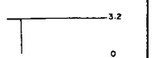
IC1602	
P No.	REC
1	-
2	3.2
3	0
4	0
5	-
6	-
7	-
8	-
9	0
10	-
11	-
12	3.1
13	3.1
14	3.1
15	0
16	-
17	0
18	-
19	-
20	-
21	-
22	-
23	0
24	3.1
25	0
26	-
27	-
28	0
29	0
30	-
31	0
32	0
33	0
34	0
35	0
36	3.1
37	0
38	3.1
39	0
40	3.1
41	0
42	0
43	1.4
44	0.4
45	0.4
46	-
47	0
48	0
49	-
50	3.1
51	0
52	-
53	-
54	-
55	-
56	-
57	-
58	-
59	-
60	-

IC1602	
P No.	REC
61	-
62	-
63	-
64	-
65	-
66	-
67	-
68	-
69	-
70	0
71	0
72	0
73	3.1
74	3.2
75	0
76	-
77	-
78	0
79	-
80	0
81	0
82	0
83	0
84	0
85	0
86	0
87	0
88	0
89	-
90	-
91	-
92	-
93	-
94	-
95	-
96	-
97	-
98	-
99	-
100	-
101	-
102	1.5
103	-
104	3.1
105	0
106	-
107	-
108	-
109	3.1
110	-
111	-
112	3.1
113	-
114	3.1
115	-
116	-
117	-
118	-
119	-
120	-

VOLTAGE CHART

IC1602

Pin 1



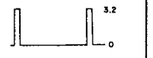
Pin 5

Pin 6

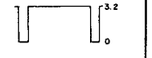
Pin 7

Pin 8

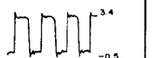
Pin 10



Pin 11



Pin 16

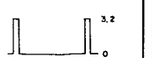


Pin 18

Pin 19

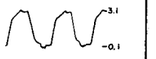
Pin 20

Pin 21

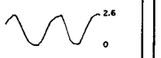


Pin 22

Pin 26

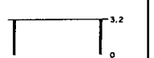


Pin 27

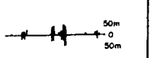


IC1602

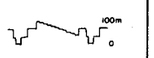
Pin 30



Pin 42

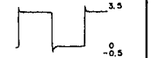


Pin 46

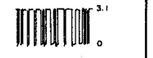


Pin 52

Pin 53

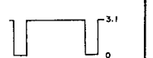


Pin 54~69

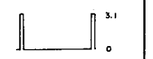


Pin 76

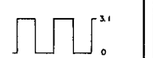
Pin 77



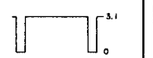
Pin 79



Pin 89

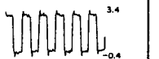


Pin 90

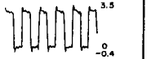


Pin 91~100

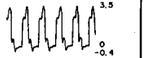
Pin 101



Pin 103

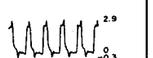


Pin 106

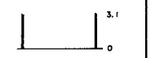


ICl602

Pin 107



Pin 108



Pin 110

Pin 111

Pin 113

Pin 115

Pin 116

Pin 117

Pin 118

Pin 119

Pin 120

IC1603

P No.	REC
1	-
2	-6.6
3	-
4	0
5	-
6	3.1
7	-
8	-
9	-
10	-
11	-
12	-
13	-
14	-
15	0
16	15.0
17	-
18	-
19	0
20	15.0

IC1603

Pin 1

Pin 3

Pin 5

Pin 7

Pin 8

Pin 9

Pin 10

Pin 12

Pin 13

Pin 14

Pin 17

Pin 18

IC1701

P No.	REC
1	-
2	-
3	-
4	-
5	-
6	4.7
7	-
8	-
9	-
10	4.7
11	4.7
12	-
13	-
14	-
15	0
16	2.0
17	0
18	-
19	2.7
20	0
21	-
22	0
23	1.3
24	0

IC1701

Pin 2, 3

Pin 4

Pin 5

Pin 7

Pin 8

Pin 14

Pin 18

Pin 21

IC2001

P No.	REC	PLAY
1	0.1/3.0	0.1/3.0
2	0	0
3	0.1/3.0	0.1/3.0
4	0.1/3.0	0.1/3.0
5	3.1	3.1
6	0.1/3.0	0.1/3.0
7	0.1/3.0	0.1/3.0
8	0	0
9	0.1/3.0	0.1/3.0
10	0.1/2.9	0.1/2.9
11	3.1	3.1
12	0.1/2.8	0.1/2.8
13	-	-
14	0	0
15	0.4/3.0	0.4/3.0
16	-	-
17	0/3.3	0/3.3
18	3.1	3.1
19	0	0
20	-0.5~0.5	-0.5~0.5
21	-2.0~1.9	-2.0~1.9
22	3.1	3.1
23	0.1/3.1	0.1/3.1
24	0.2/3.1	0.2/3.1
25	0.2/3.0	0.2/3.0
26	0.3/3.1	0.3/3.1
27	0.2/3.0	0.2/3.0
28	0.1	0.1
29	0.1	0.1
30	0.2/3.0	0.2/3.0
31	0.2/3.0	0.2/3.0
32	0.3/3.1	0.3/3.1
33	0.3/3.1	0.3/3.1
34	0.3/3.1	0.3/3.1
35	0.3/3.1	0.3/3.1
36	0.3/3.1	0.3/3.1
37	0.3/3.1	0.3/3.1
38	0.3/3.1	0.3/3.1
39	0.3/3.1	0.3/3.1
40	0.3/3.1	0.3/3.1
41	0.3/3.1	0.3/3.1
42	0.3/3.1	0.3/3.1
43	0	0
44	0.3/3.1	0.3/3.1
45	0.1/3.0	0.1/3.0
46	0.1/3.0	0.1/3.0
47	0.1/3.0	0.1/3.0
48	0.1/3.0	0.1/3.0
49	0.1/3.0	0.1/3.0
50	0.1/3.0	0.1/3.0
51	0.1/3.0	0.1/3.0
52	0/3.0	0/3.0
53	0.3/3.0	0.3/3.0
54	3.0	3.0
55	0	0
56	0.1/2.9	0.1/2.9
57	0.5/3.1	0.5/3.1
58	0.5/3.1	0.5/3.1
59	3.1	3.1
60	0.2/3.0	0.2/3.0

IC2001

P No.	REC	PLAY
61	0.2/3.0	0.2/3.0
62	0.2/3.0	0.2/3.0
63	0.2/3.0	0.2/3.0
64	-	-
65	0/2.9	0/2.9
66	0/2.8	0/2.8
67	0.1/3.0	0.1/3.0
68	0.1/2.9	0.1/2.9
69	0/2.8	0/2.8
70	3.0	3.0
71	0/2.8	0/2.8
72	0/2.8	0/2.8
73	0/2.8	0/2.8
74	0/2.8	0/2.8
75	0/2.8	0/2.8
76	0/2.8	0/2.8
77	0/2.8	0/2.8
78	0/2.8	0/2.8
79	0	0
80	0/2.8	0/2.8
81	0/2.8	0/2.8
82	0/2.8	0/2.8
83	0/2.8	0/2.8
84	0/2.8	0/2.8
85	0/2.8	0/2.8
86	0/2.8	0/2.8
87	0/2.8	0/2.8
88	0	0
89	0	0
90	3.0	3.0
91	0	0
92	0	0
93	0	0
94	0	0
95	0	0
96	0.2/3.0	0.2/3.0
97	0.2/3.0	0.2/3.0
98	3.0	3.0
99	0.1/3.0	0.1/3.0
100	0	0
101	0	0
102	0	0
103	0	0
104	0	0
105	-	-
106	3.0	3.0
107	0.1/2.9	0.1/2.9
108	0.1/2.9	0.1/2.9
109	0.1/2.9	0.1/2.9
110	0	0
111	0.1/2.9	0.1/2.9
112	0.1/2.9	0.1/2.9
113	3.0	3.0
114	0.1/2.9	0.1/2.9
115	0.1/2.9	0.1/2.9
116	0	0
117	0.1/2.9	0.1/2.9
118	0.1/2.8	0.1/2.8
119	3.0	3.0
120	0.1/2.8	0.1/2.8

IC2001

P No.	REC	PLAY
121	0/2.8	0/2.8
122	0	0
123	0/2.8	0/2.8
124	0/2.8	0/2.8
125	0/2.8	0/2.8
126	3.0	3.0
127	0	0
128	0/2.8	0/2.8
129	0/2.8	0/2.8
130	0.4/3.0	0.4/3.0
131	3.0	3.0
132	0.4/3.0	0.4/3.0
133	0.4/3.0	0.4/3.0
134	0	0
135	0.4/3.0	0.4/3.0
136	-0.2/3.0	-0.2/3.0
137	3.0	3.0
138	0/3.0	0/3.0
139	0/3.0	0/3.0
140	0	0
141	0/3.0	0/3.0
142	0.3/3.0	0.3/3.0
143	3.0	3.0
144	0.2/2.9	0.2/2.9

IC2001

Pin 17(REC)

Pin 20(REC)

Pin 21(REC)

Pin 23(REC)

Pin 24(REC)

Pin 25(REC)

Pin 26(REC)

Pin 30(REC)

Pin 31(REC)

Pin 32(REC)

Pin 52(REC)

Pin 53(REC)

Pin 53(REC)

Pin 56(REC)

Pin 57(REC)

IC2001

Pin 58(REC)

Pin 60(REC)

Pin 63(REC)

Pin 65(REC)

Pin 66(REC)

Pin 71(REC)

Pin 99(REC)

IC2002

P No.	REC	PLAY
1	3.0	3.0
2	0.1/2.9	0.1/2.9
3	0.1/2.9	0.1/2.9
4	0	0
5	0.1/2.9	0.1/2.9
6	0.1/2.9	0.1/2.9
7	3.0	3.0
8	0.1/2.9	0.1/2.9
9	0.1/2.9	0.1/2.9
10	0	0
11	0.1/2.9	0.1/2.9
12	0.1/2.9	0.1/2.9
13	3.0	3.0
14	0/2.8	0/2.8
15	0.2/3.0	0.2/3.0
16	0.2/3.0	0.2/3.0
17	0.3/3.0	0.3/3.0
18	0.3/3.0	0.3/3.0
19	0.1/2.9	0.1/2.9
20	0.1/2.9	0.1/2.9
21	0.1/2.9	0.1/2.9
22	0.1/2.9	0.1/2.9
23	0.1/2.9	0.1/2.9
24	0.1/2.9	0.1/2.9
25	3.0	3.0
26	0	0
27	0.2/3.0	0.2/3.0
28	0/2.8	0/2.8
29	0/2.8	0/2.8
30	0.2/3.0	0.2/3.0
31	-	-
32	-	-
33	-	-
34	3.0	3.0
35	-0.2/3.0	-0.2/3.0
36	0	0
37	-	-
38	3.0	3.0
39	0.1/2.9	0.1/2.9
40	0.1/2.9	0.1/2.9
41	0	0
42	0.1/2.9	0.1/2.9
43	0.1/2.9	0.1/2.9
44	3.0	3.0
45	0.1/2.9	0.1/2.9
46	0.1/2.9	0.1/2.9
47	0	0
48	0.1/2.9	0.1/2.9
49	0.1/2.9	0.1/2.9
50	0	0

VOLTAGE CHART

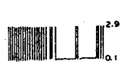
IC2002

Pin 2(PLAY)

Pin 16(REC)

Pin 17

Pin 19(REC)



Pin 35(PLAY)

IC2003

P No.	REC	PLAY
1	3.0	3.0
2	0.1/2.9	0.1/2.9
3	0.1/2.9	0.1/2.9
4	0	0
5	0.1/2.9	0.1/2.9
6	0.1/2.9	0.1/2.9
7	3.0	3.0
8	0.1/2.9	0.1/2.9
9	0.1/2.9	0.1/2.9
10	0	0
11	0.1/2.9	0.1/2.9
12	0.1/2.9	0.1/2.9
13	3.0	3.0
14	0/3.0	0/3.0
15	0.4/3.0	0.4/3.0
16	0.4/3.0	0.4/3.0
17	0.4/3.0	0.4/3.0
18	0.4/3.0	0.4/3.0
19	0.1/2.8	0.1/2.8
20	0.1/2.9	0.1/2.9
21	0.3/3.0	0.3/3.0
22	0.2/2.9	0.2/2.9
23	0.1/3.0	0.1/3.0
24	0.1/3.0	0.1/3.0
25	3.0	3.0
26	0	0
27	0.1/3.0	0.1/3.0
28	0.1/3.0	0.1/3.0
29	0.1/3.0	0.1/3.0
30	0.1/3.0	0.1/3.0
31	-	-
32	-	-
33	-	-
34	0/3.0	0/3.0
35	-0.2/3.0	-0.2/3.0
36	0/3.0	0/3.0
37	-	-
38	3.0	3.0
39	0.1/2.8	0.1/2.8
40	0.1/2.8	0.1/2.8
41	0	0
42	0/2.8	0/2.8
43	0/2.8	0/2.8
44	3.0	3.0
45	0/2.8	0/2.8
46	0/2.8	0/2.8
47	0	0
48	0/2.8	0/2.8
49	0/2.8	0/2.8
50	0	0

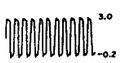
IC2003

Pin 3(REC)

Pin 15(REC)

Pin 24(PLAY)

Pin 35(PLAY)

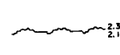


IC2101

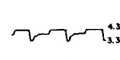
P No.	REC	PLAY
1	-	-
2	-	-
3	-	-
4	0.1	0.1
5	0	0
6	2.6	2.6
7	3.1	3.1
8	0.8	0.9
9	1.9	1.9
10	1.9	1.9
11	1.8	1.8
12	2.5	2.5
13	2.8	2.8
14	-	-
15	2.4	2.4
16	-	-
17	0	0
18	-7.6	-7.6
19	2.4	2.4
20	-	-
21	2.4	2.4
22	-	-
23	2.4	2.4
24	-	-
25	4.8	4.8
26	2.4	2.4
27	2.3	2.3
28	2.3	2.3
29	4.8/0	4.8/0
30	2.5	2.5
31	2.3	2.3
32	2.4	2.4
33	-1.3	-1.3
34	2.3	2.3
35	2.3	2.3
36	-	-
37	-	-
38	-	-
39	4.0/0	4.0/0
40	4.0/0	4.0/0
41	4.0/0	4.0/0
42	1.9	1.9
43	4.7	4.7
44	1.3	1.3
45	2.4	2.4
46	2.9	2.9
47	-	-
48	2.4	2.4

IC2101

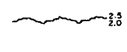
Pin 1



Pin 2



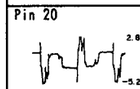
Pin 3



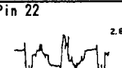
Pin 14

Pin 16

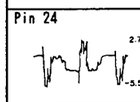
Pin 20



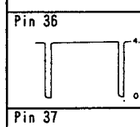
Pin 22



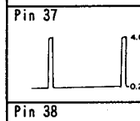
Pin 24



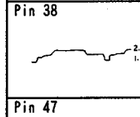
Pin 36



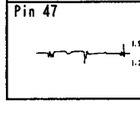
Pin 37



Pin 38



Pin 47

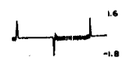


IC2102

P No.	REC	PLAY
1	4.0	4.0
2	0	0
3	0	0
4	-7.6	-7.6
5	0	0
6	-	-
7	-	-
8	4.7	4.7

IC2102

Pin 6



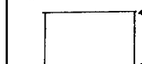
Pin 7

IC2201

P No.	REC	PLAY
1	0	0
2	4.8/0	4.8/0
3	4.9	4.9
4	-	-
5	4.9	4.9
6	0	0
7	4.9	4.9
8	-	-
9	0	0
10	0	0
11	-	-
12	-	-
13	-	-
14	-	-
15	0	0
16	0	0
17	-	-
18	0	0
19	4.9	4.9
20	-	-
21	-	-
22	4.8/0	4.9/0
23	-	-
24	4.9	4.9
25	0	0
26	-	-
27	-	-
28	0	0
29	4.9	4.9
30	-	-
31	0	0
32	4.9	4.9
33	-	-
34	0	0
35	0	0
36	0	0
37	0	0
38	0	0
39	0	0
40	4.9	4.9
41	0	0
42	0	0
43	4.9	4.9
44	4.9	4.9
45	4.9	4.9
46	4.9	4.9
47	-	-
48	-	-

IC2201

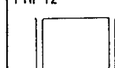
Pin 4



Pin 8

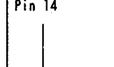
Pin 11

Pin 12

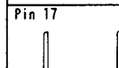


Pin 13

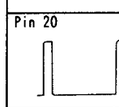
Pin 14



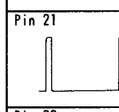
Pin 17



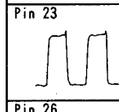
Pin 20



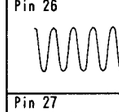
Pin 21



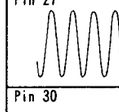
Pin 23



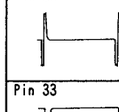
Pin 26



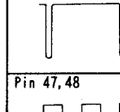
Pin 27



Pin 30



Pin 33



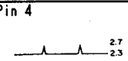
Pin 47, 48

IC2202

P No.	REC	PLAY
1	2.4	2.4
2	0	0
3	2.4	2.4
4	-	-
5	4.8	4.8

IC2202

Pin 4

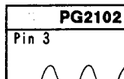


PG2102

P No.	REC	PLAY
1	-7.6	-7.6
2	4.8	4.8
3	-	-
4	0	0
5	4.8/0	4.8/0
6	4.7	4.7
7	4.8/0	4.8/0
8	-5.4	-5.4
9	-	-
10	-	-
11	-	-
12	4.7/0	4.7/0
13	-	-
14	-	-
15	0	0
16	4.8/0	4.8/0
17	4.8/0	4.8/0
18	4.8/0	4.8/0
19	6.6	6.6
20	-18.5	-18.5
21	11.2	11.2
22	0	0

PG2102

Pin 3



Pin 9

Pin 10

Pin 11

Pin 13, 14

IC2601

P No.	REC	PLAY
1	-	-
2	0.9	0.9
3	1.3	1.3
4	1.3	1.3
5	1.9	1.9
6	1.8	1.8
7	-	-
8	0	0
9	7	7
10	-	-
11	1.8	1.8
12	1.8	1.8
13	1.3	1.3
14	1.3	1.3
15	0	0
16	2.5	2.5

IC2601

Pin 1

Pin 7

Pin 10

IC2602

P No.	REC	PLAY
1	0	0
2	-	-
3	0	0
4	-	-
5	4.8	4.8

IC2602

Pin 2

Pin 4

VOLTAGE CHART

IC3001

P No.	REC	PLAY
1	5.1	5.1
2	5.1	5.1
3	5.1	5.1
4	5.1	5.1
5	0	0
6	0	0
7	5.1	5.1
8	5.1	5.1
9	5.1	5.1
10	5.1	5.1
11	5.1	5.1
12	-	-
13	4.8	1.0
14	1.0	4.8
15	0	0
16	2.0	2.0
17	0	0
18	-	-
19	-	-
20	5.3	5.3
21	-	-
22	-	-
23	5.3	5.3
24	5.3	5.3
25	5.3	5.3
26	5.3	5.3
27	0~5.3	0~5.3
28	0~5.3	0~5.3
29	0~5.1	0~5.1
30	0~5.3	0~5.3
31	0~5.3	0~5.3
32	0~5.0	0~5.0
33	5.3	5.3
34	-	-
35	4.8	4.8
36	5.3	5.3
37	0	0
38	5.3	5.3
39	5.3	5.3
40	0~5.1	0~5.1
41	0	5.3
42	5.3	0
43	5.3	5.3
44	0	0

IC3003

P No.	REC	PLAY
1	5.2	5.2
2	5.2	5.2
3	5.2	5.2
4	3.2	3.2
5	4.9	4.9
6	0	0
7	5.2	5.2
8	6.9	6.9

IC3004

P No.	REC	PLAY
1	4.9/0	4.9/0
2	0	0
3	4.9/0	4.9/0
4	4.9/0	4.9/0
5	3.0	3.0
6	3.9	3.9
7	-	-
8	0	0
9	0	0
10	-	-
11	2.9	2.9
12	2.9	2.9
13	0	0
14	0	0
15	4.9	4.9
16	4.9	4.9

IC3005

P No.	REC	PLAY
1	0.1/4.5	0.1/4.5
2	0.1/4.6	0.1/4.5
3	0.1/4.5	0.1/4.5
4	4.5	4.5
5	4.8	4.8
6	0.1	0.1
7	0.1/4.1	0.5/4.1
8	0.1/2.9	0.1/2.9
9	0	0
10	0	0
11	-	-
12	0.1	0.1
13	-	-
14	-	-
15	0.1/4.8	0.1/4.8
16	0.1/4.7	0.1/4.7
17	0.1/4.7	0.1/4.7
18	0.1/4.7	0.1/4.7
19	0.1/4.8	0.1/4.8
20	0.1/4.8	0.1/4.8

IC4001

P No.	REC	PLAY
1	0/2.7	0/2.7
2	0/2.7	0/2.7
3	0/2.7	0/2.7
4	0/2.7	0/2.7
5	0/2.7	0/2.7
6	0	0
7	3.0	3.0
8	0/2.7	0/2.7
9	0/2.8	0/2.8
10	0/2.8	0/2.8
11	0/2.8	0/2.8
12	0/2.8	0/2.8
13	0.2/3.0	0.2/3.0
14	0/2.8	0/2.8
15	0/2.8	0/2.8
16	0/2.8	0/2.8
17	0	0
18	3.0	3.0
19	0	0
20	3.0	3.0
21	0/2.8	0/2.8
22	0/2.8	0/2.8
23	0/2.8	0/2.8
24	0/2.8	0/2.8
25	0/2.8	0/2.8
26	0/2.8	0/2.8
27	0.1/3.0	0.1/3.0
28	0.1/3.0	0.1/3.0
29	0.1/3.0	0.1/3.0
30	0	0
31	3.0	3.0
32	0.1/3.0	0.1/3.0
33	0.1/3.0	0.1/3.0
34	0/2.9	0/2.9
35	0.1/2.9	0.1/2.9
36	0.1/3.0	0.1/3.0
37	0.1/2.9	0.1/2.9
38	0.1/2.9	0.1/2.9
39	0/2.8	0/2.8
40	0.3/3.0	0.3/3.0
41	0	0
42	3.0	3.0
43	0/2.8	0/2.8
44	0/2.8	0/2.8
45	0/2.8	0/2.8
46	0/2.8	0/2.8
47	0/2.8	0/2.8
48	0/2.8	0/2.8
49	0	0
50	3.0	3.0
51	0/2.8	0/2.8
52	0/2.8	0/2.8
53	0/2.8	0/2.8
54	0	0
55	3.0	3.0
56	0/2.8	0/2.8
57	0/2.8	0/2.8
58	0/2.8	0/2.8
59	0	0
60	3.0	3.0

IC4001

P No.	REC	PLAY
61	0/2.9	0/2.9
62	0	0
63	0	0
64	0	0
65	-	-
66	-	-
67	-	-
68	0	0
69	3.0	3.0
70	-	-
71	-	-
72	-	-
73	0	0
74	1.8	1.8
75	3.0	3.0
76	0	0
77	1.4	1.4
78	3.0	3.0
79	0/2.9	0/2.9
80	-	-
81	3.0	3.0
82	0	0
83	3.0	3.0
84	3.0	3.0
85	3.0	3.0
86	3.0	3.0
87	3.0	3.0
88	0/3.2	0/3.2
89	3.0	3.0
90	3.0	3.0
91	3.0	3.0
92	0.1/3.0	0.1/3.0
93	0.1/3.0	0.1/3.0
94	0.1/2.9	0.1/2.9
95	-	-
96	-	-
97	-	-
98	-	-
99	-	-
100	0	0
101	0/2.8	0/2.8
102	3.0	3.0
103	3.0	3.0
104	0	0
105	0.2/3.0	0.2/3.0
106	0.2/3.0	0.2/3.0
107	0.3/3.2	0.3/3.2
108	0.1/2.9	0.1/2.9
109	-	-
110	-	-
111	0.2/3.0	0.2/3.0
112	-	-
113	3.0	3.0
114	3.0	3.0
115	0	0
116	3.0	3.0
117	3.0	3.0
118	3.0	3.0
119	-	-
120	-	-

IC4001

P No.	REC	PLAY
121	0	0
122	3.0	3.0
123	3.0	3.0
124	3.0	3.0
125	-	-
126	0.2/3.0	0.2/3.0
127	0	0
128	0	0
129	3.0	3.0
130	0	0
131	3.0	3.0
132	3.0	3.0
133	0	0
134	-	-
135	3.0	3.0
136	-	-
137	0	0
138	0	0
139	3.0	3.0
140	0/2.7	0/2.7
141	0/2.7	0/2.7
142	0/2.7	0/2.7
143	0/2.7	0/2.7
144	0	0

IC4001

Pin 39(REC)

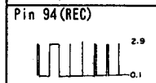
Pin 79(REC)

Pin 88(PLAY)

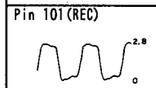
Pin 92(REC)

Pin 93(REC)

Pin 94(REC)

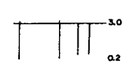


Pin 101(REC)



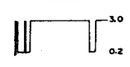
Pin 105(REC)

Pin 106(REC)

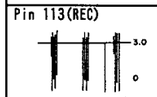


Pin 107(REC)

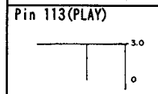
Pin 111(REC)



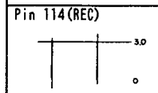
Pin 113(REC)



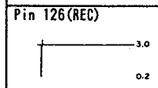
Pin 113(PLAY)



Pin 114(REC)



Pin 126(REC)

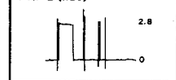


IC4002

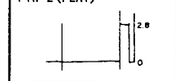
P No.	REC	PLAY
1	3.0	3.0
2	0/2.8	0/2.8
3	0.2/3.0	0.2/3.0
4	0	0
5	0/2.8	0/2.8
6	0/2.8	0/2.8
7	3.0	3.0
8	0/2.8	0/2.8
9	0/2.8	0/2.8
10	0	0
11	0/2.7	0/2.7
12	0/2.7	0/2.7
13	3.0	3.0
14	0.2/3.0	0.2/3.0
15	0.2/3.0	0.2/3.0
16	0.2/3.0	0.2/3.0
17	0.2/3.0	0.2/3.0
18	0.2/3.0	0.2/3.0
19	0/2.8	0/2.8
20	0/2.8	0/2.8
21	0/2.8	0/2.8
22	0/2.8	0/2.8
23	0/2.8	0/2.8
24	0.2/3.0	0.2/3.0
25	3.0	3.0
26	0	0
27	0.1/2.9	0.1/2.9
28	0/2.9	0/2.9
29	0.3/3.1	0.3/3.1
30	0.1/3.0	0.1/3.0
31	-	-
32	-	-
33	-	-
34	0.2/3.0	0.2/3.0
35	0.1/3.0	0.1/3.0
36	0.2/3.0	0.2/3.0
37	-	-
38	3.0	3.0
39	0/2.7	0/2.7
40	0/2.7	0/2.7
41	0	0
42	0/2.7	0/2.7
43	0/2.7	0/2.7
44	3.0	3.0
45	0/2.7	0/2.7
46	0/2.7	0/2.7
47	0	0
48	0/2.7	0/2.7
49	0/2.7	0/2.7
50	0	0

IC4002

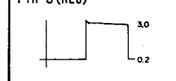
Pin 2(REC)



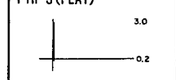
Pin 2(PLAY)



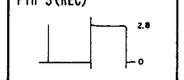
Pin 3(REC)



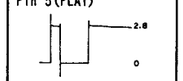
Pin 3(PLAY)



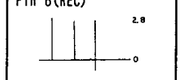
Pin 5(REC)



Pin 5(PLAY)

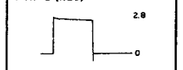


Pin 6(REC)



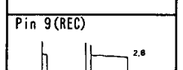
Pin 6(PLAY)

Pin 8(REC)

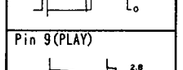


Pin 8(PLAY)

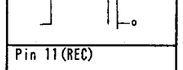
Pin 9(REC)



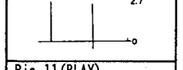
Pin 9(PLAY)



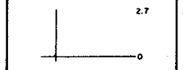
Pin 11(REC)



Pin 11(PLAY)

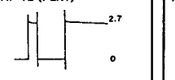


Pin 12(REC)

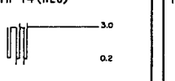


IC4002

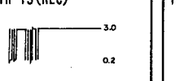
Pin 12(PLAY)



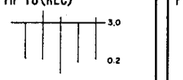
Pin 14(REC)



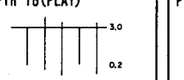
Pin 15(REC)



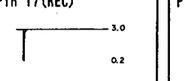
Pin 16(REC)



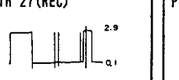
Pin 16(PLAY)



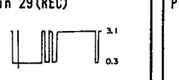
Pin 17(REC)



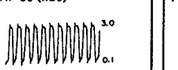
Pin 27(REC)



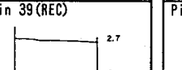
Pin 29(REC)



Pin 35(REC)



Pin 39(REC)



Pin 39(PLAY)

Pin 40(REC)

Pin 40(PLAY)

Pin 42(REC)

Pin 42(PLAY)

IC4002

Pin 43(REC)

Pin 43(PLAY)

Pin 45(REC)

Pin 45(PLAY)

Pin 46(REC)

Pin 46(PLAY)

Pin 48(REC)

Pin 48(PLAY)

Pin 49(REC)

Pin 49(PLAY)

IC4003

P No.	REC	PLAY
1	3.0	3.0
2	0.1/3.0	0.1/3.0
3	0.1/2.9	0.1/2.9
4	0	0
5	0/2.9	0/2.9
6	0.1/3.0	0.1/3.0
7	3.0	3.0
8	0.1/3.0	0.1/3.0
9	0.1/3.0	0.1/3.0
10	0	0
11	0.1/3.0	0.1/3.0
12	0.1/3.0	0.1/3.0
13	3.0	3.0
14	0.1/3.0	0.1/3.0
15	0.3/3.0	0.3/3.0
16	0.3/3.0	0.3/3.0
17	0.3/3.0	0.3/3.0
18	0.3/3.0	0.3/3.0
19	0/2.8	0/2.8
20	0/2.8	0/2.8
21	0/2.8	0/2.8
22	0.3/3.0	0.3/3.0
23	0/2.8	0/2.8
24	0.2/3.0	0.2/3.0
25	3.0	3.0
26	0	0
27	0/2.8	0/2.8
28	0/2.8	0/2.8
29	0.2/3.0	0.2/3.0
30	0/2.8	0/2.8
31	-	-
32	-	-
33	-	-
34	0.2/3.0	0.2/3.0
35	0.1/3.0	0.1/3.0
36	0.2/3.0	0.2/3.0
37	-	-
38	3.0	3.0
39	0/2.8	0/2.8
40	0/2.8	0/2.8
41	0	0
42	0/2.8	0/2.8
43	0/2.8	0/2.8
44	3.0	3.0
45	0/2.8	0/2.8
46	0/2.8	0/2.8
47	0	0
48	0/2.8	0/2.8
49	0/2.8	0/2.8
50	0	0

IC4004

P No.	REC	PLAY
1	0.2/3.0	0.2/3.0
2	0/2.8	0/2.8
3	0.1/2.9	0.1/2.9
4	0.1/2.8	0.1/2.8
5	0.1/2.9	0.1/2.9
6	0/2.8	0/2.8
7	0.1/2.9	0.1/2.9
8	0.1/2.9	0.1/2.9
9	-	-
10	-	-
11	0.3/3.1	0.3/3.1
12	0.1/3.3	0.1/3.3
13	-	-
14	-	-
15	-	-
16	-	-
17	0.1/2.9	0.1/2.9
18	0.3/3.1	0.3/3.1
19	0.2/3.0	0.2/3.0
20	0.1/2.9	0.1/2.9
21	0.3/3.1	0.3/3.1
22	0.1/2.9	0.1/2.9
23	0.3/3.1	0.3/3.1
24	0.3/3.1	0.3/3.1
25	0.3/3.0	0.3/3.0
26	0.1/2.9	0.1/2.9
27	0	0
28	0.3/3.1	0.3/3.1
29	0.1/3.0	0.1/3.0
30	0.1/3.0	0.1/3.0
31	0.1/3.0	0.1/3.0
32	0.1/3.0	0.1/3.0
33	0.1/3.0	0.1/3.0
34	0.1/3.0	0.1/3.0
35	0.1/3.0	0.1/3.0
36	0.1/3.0	0.1/3.0
37	3.1	3.1
38	0.1/3.0	0.1/3.0
39	0.1/3.0	0.1/3.0
40	0.1/3.0	0.1/3.0
41	0.1/3.0	0.1/3.0
42	0.1/3.0	0.1/3.0
43	0.1/3.0	0.1/3.0
44	0.1/3.0	0.1/3.0
45	0.2/2.9	0.2/2.9
46	0.1	0.1
47	0.1/3.1	0.1/3.1
48	0.1/3.0	0.1/3.0

VOLTAGE CHART

IC4004

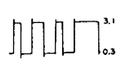
Pin 1 (REC)

Pin 1 (PLAY)

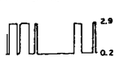
Pin 11 (REC)

Pin 12 (PLAY)

Pin 24 (PLAY)



Pin 45 (REC)



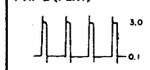
IC5001		
P No.	REC	PLAY
1	3.0	3.0
2	0.1/3.0	0.1/3.0
3	0.1/3.0	0.1/3.0
4	0.1/3.0	0.1/3.0
5	0.1/3.0	0.1/3.0
6	0.1/3.0	0.1/3.0
7	0.1/3.0	0.1/3.0
8	0.1/3.0	0.1/3.0
9	0.1/3.0	0.1/3.0
10	0.1/3.0	0.1/3.0
11	0.1/3.0	0.1/3.0
12	0.1/3.0	0.1/3.0
13	0.1/3.0	0.1/3.0
14	0.1/3.0	0.1/3.0
15	0.1/3.0	0.1/3.0
16	0.1/3.0	0.1/3.0
17	0.1/3.0	0.1/3.0
18	0.1/3.0	0.1/3.0
19	0.1/3.0	0.1/3.0
20	0.1/3.0	0.1/3.0
21	0.1/3.0	0.1/3.0
22	0.1/3.0	0.1/3.0
23	0.1/3.0	0.1/3.0
24	0.1/3.0	0.1/3.0
25	0.1/3.0	0.1/3.0
26	0.1/3.0	0.1/3.0
27	0.1/3.0	0.1/3.0
28	0.1/3.0	0.1/3.0
29	0.1/3.0	0.1/3.0
30	0.1/3.0	0.1/3.0
31	0.1/3.0	0.1/3.0
32	0	0
33	3.0	3.0
34	0.1/3.0	0.1/3.0
35	0.1/3.0	0.1/3.0
36	0.1/3.0	0.1/3.0
37	0.1/3.0	0.1/3.0
38	0.1/3.0	0.1/3.0
39	0.1/3.0	0.1/3.0
40	0.1/3.0	0.1/3.0
41	0.1/3.0	0.1/3.0
42	0.1/3.0	0.1/3.0
43	0.1/3.0	0.1/3.0
44	0.1/3.0	0.1/3.0
45	3.0	3.0
46	0.1/3.0	0.1/3.0
47	3.0	3.0
48	-	-
49	0.1/3.0	0.1/3.0
50	0.1/3.0	0.1/3.0
51	-	-
52	0.2/4.9	0.2/4.9
53	0.2/4.9	0.2/4.9
54	0.2/4.9	0.2/4.9
55	0.2/4.9	0.2/4.9
56	0.2/4.9	0.2/4.9
57	0.2/4.9	0.2/4.9
58	0.2/4.9	0.2/4.9
59	0.2/4.9	0.2/4.9
60	0.2/4.9	0.2/4.9

IC5001		
P No.	REC	PLAY
61	0.2/4.9	0.2/4.9
62	0.2/4.9	0.2/4.9
63	0.2/4.9	0.2/4.9
64	0	0
65	5.0	5.0
66	0.2/4.9	0.2/4.9
67	0.3/5.0	0.3/5.0
68	0.2/4.9	0.2/4.9
69	0.2/4.9	0.2/4.9
70	0.2/4.9	0.2/4.9
71	0.2/4.9	0.2/4.9
72	0.2/4.9	0.2/4.9
73	0.2/4.9	0.2/4.9
74	0.2/4.9	0.2/4.9
75	0.2/4.9	0.2/4.9
76	0.2/4.9	0.2/4.9
77	0.2/4.8	0.2/4.8
78	0.2/4.8	0.2/4.8
79	0.2/4.8	0.2/4.8
80	0.2/4.8	0.2/4.8
81	0.2/4.8	0.2/4.8
82	0.2/4.8	0.2/4.8
83	0.2/4.8	0.2/4.8
84	0.2/4.8	0.2/4.8
85	0.2/4.8	0.2/4.8
86	0.2/4.8	0.2/4.8
87	0.2/4.8	0.2/4.8
88	0.1/4.8	0.2/4.8
89	0.2/4.9	0.2/4.9
90	0.2/4.9	0.2/4.9
91	0.2/4.9	0.2/4.9
92	0.2/4.9	0.2/4.9
93	0.2/4.9	0.2/4.9
94	0.2/4.9	0.2/4.9
95	0.2/4.9	0.2/4.9
96	0	0
97	5.0	5.0
98	0.2/4.9	0.2/4.9
99	0.2/4.9	0.2/4.9
100	0.2/4.9	0.2/4.9
101	0.1/4.8	0.1/4.8
102	0.1/4.8	0.1/4.8
103	0/4.7	0/4.7
104	0	0
105	0.1/2.9	0.1/2.9
106	0.1/2.9	0.1/2.9
107	0.1/2.9	0.1/2.9
108	5.0	5.0
109	0.1/2.9	0.1/2.9
110	0.1/2.9	0.1/2.9
111	0.1/2.9	0.1/2.9
112	0.1/2.9	0.1/2.9
113	3.0	3.0
114	0.1/2.9	0.1/2.9
115	0.1/2.9	0.1/2.9
116	0.1/2.9	0.1/2.9
117	0.1/2.9	0.1/2.9
118	0.1/2.9	0.1/2.9
119	0.1/2.9	0.1/2.9
120	0	0

IC5001		
P No.	REC	PLAY
121	0.1/2.9	0.1/2.9
122	0.1/2.8	0.1/2.8
123	0.1/2.8	0.1/2.8
124	0.1/2.8	0.1/2.8
125	0.1/2.8	0.1/2.8
126	0.1/2.8	0.1/2.8
127	0.1/2.8	0.1/2.8
128	0	0

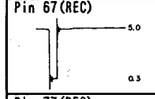
IC5001

Pin 2 (PLAY)

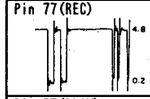


Pin 52 (PLAY)

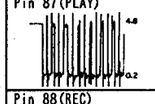
Pin 67 (REC)



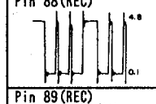
Pin 77 (REC)



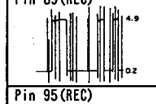
Pin 87 (PLAY)



Pin 88 (REC)

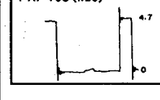


Pin 89 (REC)



Pin 95 (REC)

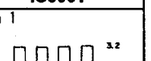
Pin 103 (REC)



IC6001		
P No.	REC	PLAY
1	-	-
2	-	-
3	0	0
4	3.2	0
5	-	0
6	3.3	0
7	0	0
8	3.0	3.1
9	0	0
10	1.5	1.6
11	3.0	3.1
12	0~0.4	0~0.4
13	1.6	1.6
14	0	1.6
15	0.2	0
16	1.5	1.6
17	1.4	1.4
18	1.5	1.6
19	3.0	3.1
20	0	0
21	0.4	0.4
22	1.5	1.6
23	1.5	1.6
24	2.6	1.6
25	3.0	3.1
26	0	0
27	0	0
28	3.0	3.1
29	0	3.4
30	0	0
31	-	-
32	-	-
33	0	0
34	3.0	3.1
35	0	-
36	3.3	0
37	0	0
38	0	0
39	0	0
40	-	-
41	-	0.1
42	0	0
43	0	0
44	0.1	0.1

IC6001

Pin 1



Pin 2

Pin 5

Pin 31

Pin 35

Pin 40

Pin 41

IC6002		
P No.	REC	PLAY
1	0.2~4.2	0.2~4.2
2	0	0
3	0	0
4	0~1.5	0~1.5
5	4.7	4.7
6	0	0
7	2.0	2.0
8	0	0
9	0	0
10	2.0	2.0
11	1.8~2.2	1.8~2.2
12	0	0
13	0~0.2	0~0.2
14	0	0

IC6003		
P No.	REC	PLAY
1	1.9~2.7	1.9~2.7
2	2.2~2.5	2.2~2.5
3	2.2~2.4	2.2~2.4
4	0	0
5	0	0
6	4.7	4.7
7	0	0
8	4.7	4.7

IC6004		
P No.	REC	PLAY
1	0.2	4.7
2	0.1	2.1~3.0
3	0	0
4	0	0.6~1.0
5	0	1.0~2.2
6	0	0
7	0	0
8	0	1.0~2.2

IC6401		
P No.	REC	PLAY
1	0	0
2	7.4	7.4
3	7.4	7.4
4	0.2	0.2
5	0.2	0.2
6	3.7	3.7
7	0	0
8	0	0

IC6402		
P No.	REC	PLAY
1	4.7	4.7
2	3.7	3.7
3	0	0

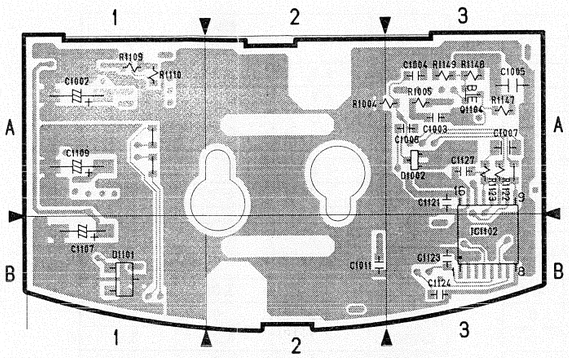
IC7001		
P No.	REC	PLAY
1	7.0	7.0
2	7.0	7.0
3	7.0	7.0
4	4.5	4.5
5	0	0
6	0	0
7	0	0
8	0	0
9	4.9	4.9
10	4.9	4.9
11	0	0
12	0	0
13	3.3	3.3

Transistor's

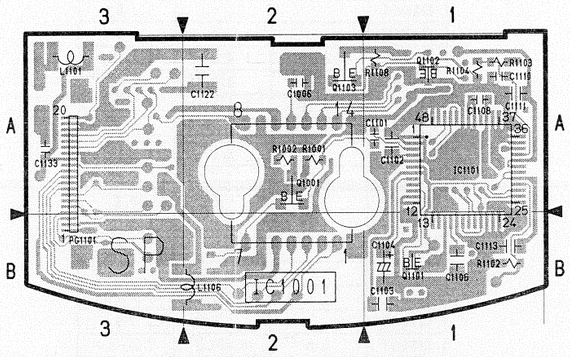
P No.	REC		
	E	B	C
Q1001	8.9	9.6	14.8
Q1101	4.8	4.1	3.3
Q1102	-	-	0
Q1103	-	-	4.8
Q1104	-4.6	-5.3	-6.5
Q1201	4.6(1)	4.0(2)	4.0(3)
	4.6(4)	4.0(5)	1.7(6)
Q1202	2.1	2.7	4.0
Q1203	0(1)	0(2)	0(3)
	0(4)	3.0(5)	2.0(6)
Q1204	1.9	0	4.8
Q1501	6.7	6.2	6.9
Q1502	0	4.9	0
Q1601	-	-	0
Q1602	2.1	-	-
Q1603	2.1	1.5	0
Q1604	-	-	0
Q1605	-	-	0
Q1606	3.8	4.9	3.1
Q1608	3.9(1)	4.5(2)	0(3)
	2.1(4)	1.4(5)	4.8(6)
Q1611	-6.6	-7.3	-7.7
Q1701	0	3.1	0
Q1702	4.9	4.8	0
Q1703	0	0	4.8
Q1704	0	3.1	0
Q1707	-	3.1	0
Q1708	-(1)	-(2)	-(3)
	4.9(4)	4.2(5)	4.2(6)
Q1709	-	-	4.9
Q2601	6.8	6.4/6.0	7.0/-2.4
Q2603	6.4/6.0	7.0/2.8	6.8
Q2604	0	5.1	0
Q2605	0	0	2.1
Q2608	6.8	7.0/6.0	6.8/0
Q2609	6.9	6.2	6.9
Q2610	0	4.9	0.1
Q2612	11.2	11.8	15.0

P No.	REC			PLAY		
	E	B	C	E	B	C
Q3001	0(1)	0(2)	0(3)	0(1)	0(2)	0(3)
	5.2(4)	5.2(5)	5.2(6)	5.2(4)	5.2(5)	5.2(6)
Q3005	3.3(1)	3.9(2)	3.9(3)	3.3(1)	3.9(2)	3.9(3)
	3.4(4)	3.9(5)	5.2(6)	3.4(4)	3.9(5)	5.2(6)
Q6002	2.0	2.0	0	2.6	2.0	0
Q6003	2.6	2.0	0	2.0	2.0	0
Q6004	2.0	2.6	4.8	2.0	2.6	4.8
Q6007	0.7	1.3	4.8	0.7	1.3	4.8
Q6008	4.9	4.9	0.2	4.7	4.0	4.7
Q6009	0	0	4.8	0	3.2	0.1
Q6401	0	4.8	0.1	0	4.8	0.1
Q6402	6.2	5.5	6.2	6.1	5.4	6.1
Q7001	0	0	4.6	0	0	4.6
Q7002	4.8	4.9	4.9	4.9	4.9	4.9

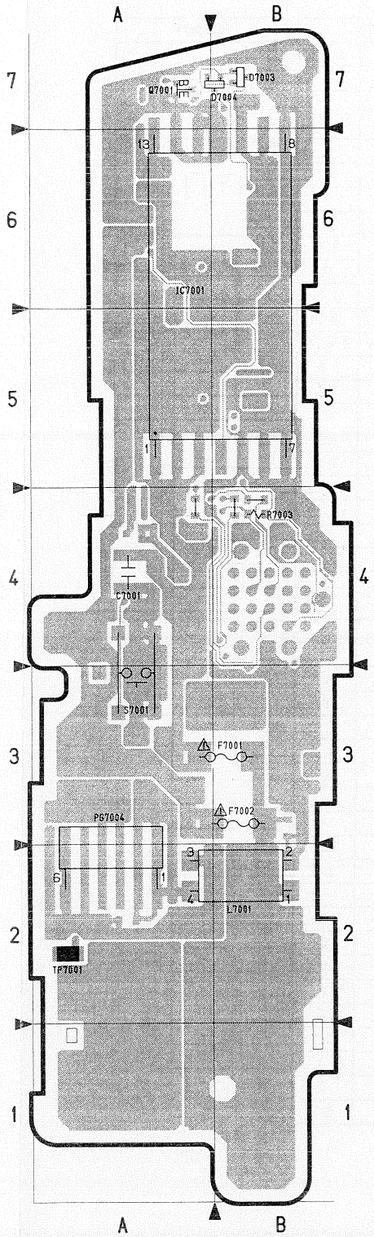
SP,LEN,REG CIRCUIT BOARDS[PATTERN No.JA1299-5]

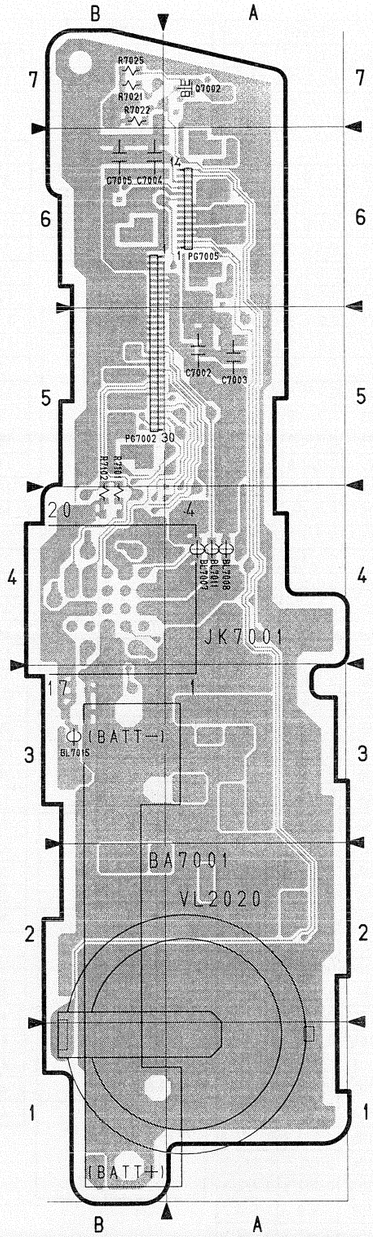


SP(SENSOR)-SIDE A-



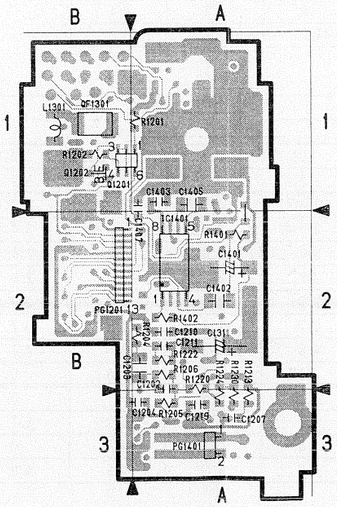
SP(SENSOR)-SIDE B-



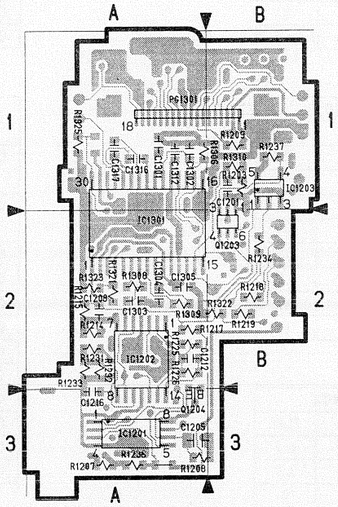


REG(REGULATOR)

-SIDE A- -SIDE B-



LEN(LENS)-SIDE A-



LEN(LENS)-SIDE B-

IDENTIFICATION OF PARTS LOCATION

SP [SENSOR]

Symbol No.	Parts Location
C	
C1002	A-1A
C1003	A-3A
C1004	A-3A
C1005	A-3A
C1006	B-2A
C1007	A-3A
C1008	A-3A
C1011	A-2B
C1101	B-1A
C1102	B-1A
C1103	B-1B
C1104	B-1B
C1106	B-1B
C1107	A-1B
C1108	B-1A
C1109	A-1A
C1110	B-1A
C1111	B-1A
C1113	B-1B
C1121	A-3A
C1122	B-2A
C1123	A-3B
C1124	A-3B
C1127	A-3A
C1133	B-3A
D	
D1002	A-3A
D1101	A-1B
IC	
IC1001	B-2A
IC1101	B-1A
IC1102	A-3B
L	
L1101	B-3A
L1106	B-2B
PG	
PG1101	B-3B
Q	
Q1001	B-2A
Q1101	B-1B
Q1102	B-1A
Q1103	B-2A
Q1104	A-3A
R	
R1001	B-2A
R1002	B-2A
R1004	A-3A
R1005	A-3A
R1102	B-1B
R1103	B-1A
R1104	B-1A
R1108	B-1A
R1109	A-1A
R1110	A-1A
R1122	A-3A
R1123	A-3A

Symbol No.	Parts Location
R1147	A-3A
R1148	A-3A
R1149	A-3A

LEN [LENS]

Symbol No.	Parts Location
C	
C1201	B-1B
C1202	A-2A
C1203	A-2A
C1204	A-3A
C1205	B-3A
C1207	A-3A
C1208	B-2A
C1210	A-2A
C1211	A-2A
C1212	B-2A
C1216	B-3A
C1219	A-3A
C1301	B-1A
C1302	B-1A
C1303	B-2A
C1304	B-2A
C1305	B-2A
C1311	A-2A
C1312	B-1A
C1316	B-1A
C1317	B-1A
C1401	A-2A
C1402	A-2A
C1403	A-1A
C1405	A-1A
C1407	A-1A
IC	
IC1201	B-3A
IC1202	B-2A
IC1203	B-1B
IC1301	B-2A
IC1401	A-2A
L	
L1301	A-1B
PG	
PG1201	A-2B
PG1301	B-1A
PG1401	A-3A
Q	
Q1201	A-1B
Q1202	A-1B
Q1203	B-2B
Q1204	B-3A
QF	
QF1301	A-1B
R	
R1201	A-1A
R1202	A-1B
R1203	B-1B
R1204	A-2A
R1205	A-3A
R1206	A-2A
R1207	B-3A
R1208	B-3A
R1209	B-1B
R1213	A-3A

Symbol No.	Parts Location
R1214	B-2A
R1215	B-2A
R1217	B-2A
R1218	B-2B
R1219	B-2B
R1220	A-2A
R1222	A-2A
R1224	A-3A
R1225	B-2A
R1226	B-2A
R1230	A-3A
R1231	B-2A
R1232	B-2A
R1233	B-2A
R1234	B-2B
R1236	B-3A
R1237	B-1B
R1306	B-1A
R1308	B-2A
R1309	B-2A
R1310	B-1B
R1321	B-2A
R1322	B-2B
R1323	B-2A
R1325	B-1A
R1401	A-2A
R1402	A-2A

REG [REGULATOR]

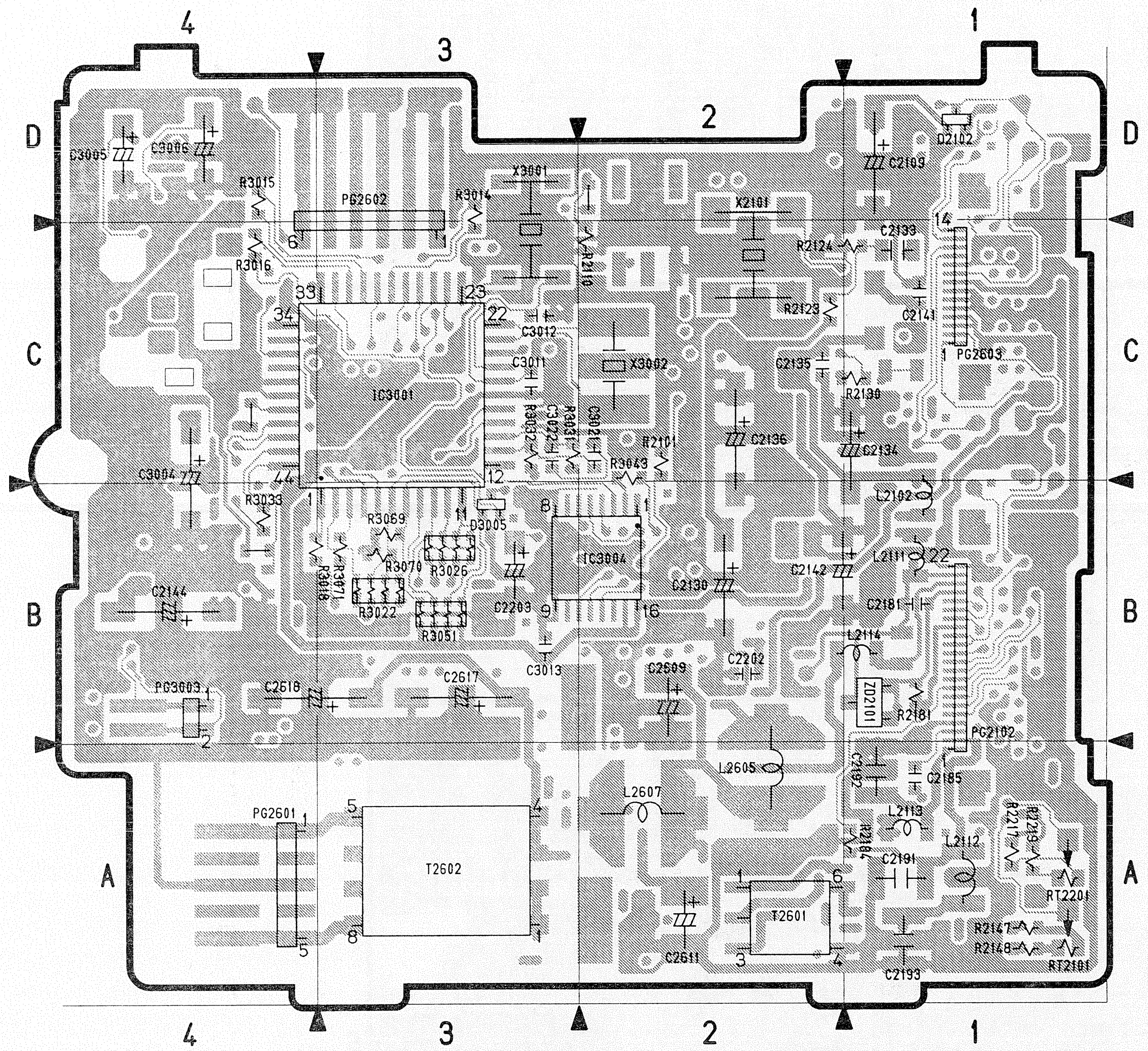
Symbol No.	Parts Location
BA	
BA7001	B-1B
BL	
BL7007	B-4A
BL7008	B-4A
BL7011	B-4A
BL7015	B-3B
C	
C7001	A-4A
C7002	B-5A
C7003	B-5A
C7004	B-6B
C7005	B-6B
D	
D7003	A-7B
D7004	A-7B
F	
F7001	A-3B
F7002	A-3B
IC	
IC7001	A-6B
JK	
JK7001	B-4B
L	
L7001	A-2B
PG	
PG7002	B-5B
PG7004	A-2A
PG7005	B-6A
Q	
Q7001	A-7A
Q7002	B-7A
R	
R7003	A-4B
R7021	B-7B
R7022	B-7B
R7025	B-7B
R7101	B-4B
R7102	B-4B
S	
S7001	A-3A
TP	
TP7001	A-2A
VL	
VL2020	B-1A

IDENTIFICATION OF PARTS LOCATION

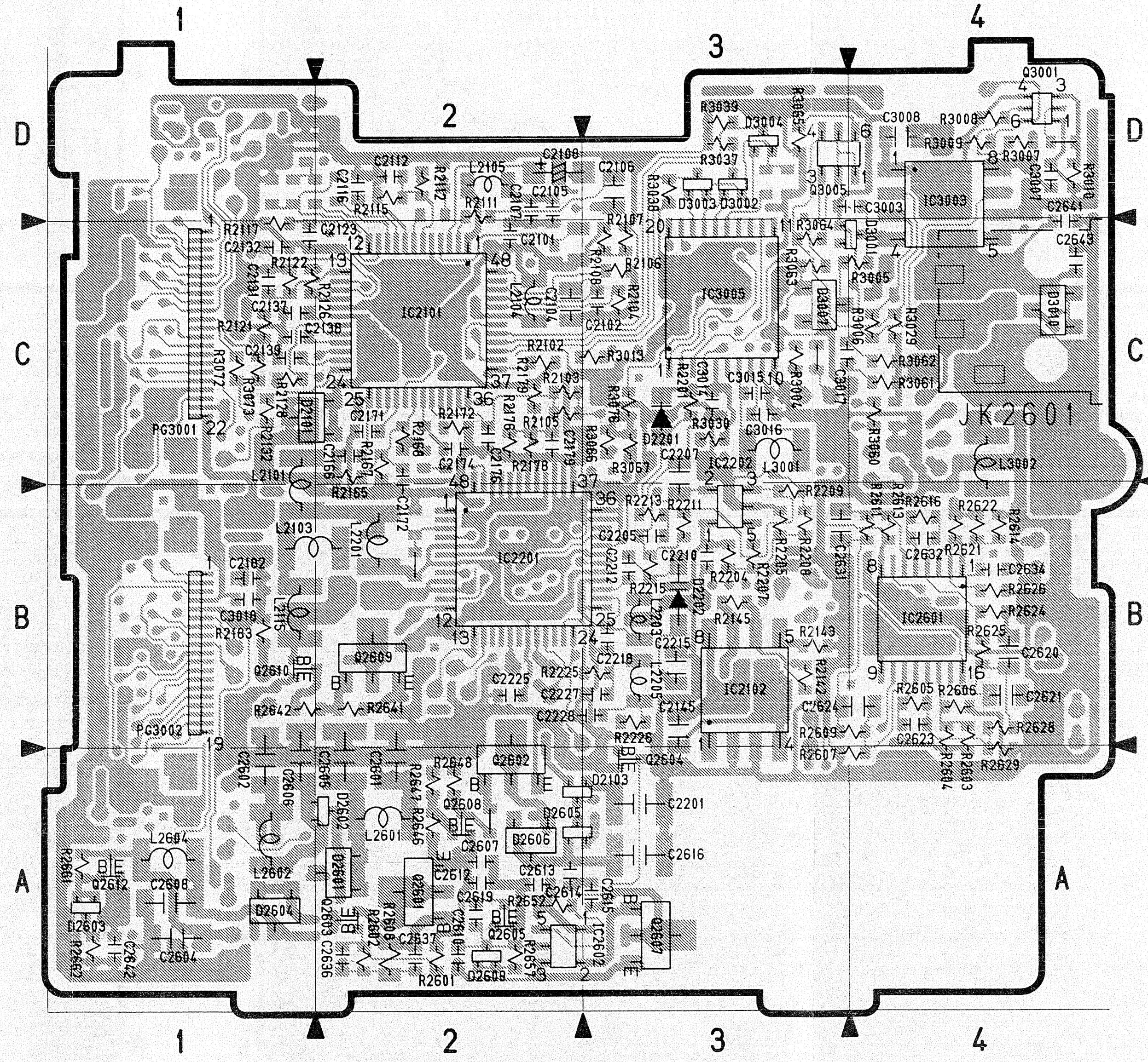
LCS [LCD/SWR]

Symbol No.	Parts Location
C	
C2101	B-2C
C2102	B-3C
C2104	B-2C
C2105	B-2D
C2106	B-3D
C2107	B-2D
C2108	B-2D
C2109	A-1D
C2112	B-2D
C2116	B-2D
C2123	B-1C
C2130	A-2B
C2131	B-1C
C2132	B-1C
C2133	A-1C
C2134	A-1C
C2135	A-2C
C2136	A-2C
C2137	B-1C
C2138	B-1C
C2139	B-1C
C2141	A-1C
C2142	A-2B
C2144	A-4B
C2145	B-3B
C2166	B-2C
C2171	B-2C
C2172	B-2C
C2174	B-2C
C2176	B-2C
C2179	B-2C
C2181	A-1B
C2182	B-1B
C2185	A-1A
C2191	A-1A
C2192	A-1A
C2193	A-1A
C2201	B-3A
C2202	A-2B
C2203	A-3B
C2205	B-3B
C2207	B-3C
C2210	B-3B
C2212	B-3B
C2215	B-3B
C2218	B-3B
C2225	B-2B
C2227	B-3B
C2228	B-3B
C2601	B-2A
C2602	B-1A
C2604	B-1A
C2605	B-2A
C2606	B-1A
C2607	B-2A
C2608	B-1A
C2609	A-2B
C2610	B-2A
C2611	A-2A
C2612	B-2A
C2613	B-2A
C2614	B-2A
C2615	B-3A
C2616	B-3A
C2617	A-3B
C2618	A-4B
C2619	B-2A
C2620	B-4B
C2621	B-4B
C2623	B-4B
C2624	B-4B
C2631	B-3B
C2632	B-4B
C2634	B-4B
C2636	B-2A
C2637	B-2A
C2641	B-4C
C2642	B-1A
C2643	B-4C
C3003	B-4D
C3004	A-4C
C3005	A-4D
C3006	A-4D
C3007	B-4D
C3008	B-4D
C3011	A-3C
C3012	A-3C
C3013	A-3B
C3014	B-3C
C3015	B-3C
C3016	B-3C
C3017	B-3C
C3018	B-1B
C3021	A-2C
C3022	A-3C
D	
D2101	B-1C
D2102	A-1D
D2103	B-2A
D2201	B-3C
D2202	B-3B
D2601	B-2A
D2602	B-2A
D2603	B-1A
D2604	B-1A
D2605	B-2A
D2606	B-2A
D2609	B-2A
D3001	B-4C
D3002	B-3D
D3003	B-3D
D3004	B-3D
D3005	A-3B
D3007	B-3C
D3010	B-4C
IC	
IC2101	B-2C
IC2102	B-3B
IC2201	B-2B
IC2202	B-3B
IC2601	B-4B
IC2602	B-2A
IC3001	A-3C
IC3003	B-4D
IC3004	A-2B
IC3005	B-3C
JK	
JK2601	B-4C
L	
L2101	B-1B
L2102	A-1B
L2103	B-1B
L2104	B-2C
L2105	B-2D
L2111	A-1B
L2112	A-1A
L2113	A-1A
L2114	A-1B
L2115	B-1B
L2201	B-2B
L2203	B-3B
L2205	B-3B
L2601	B-2A
L2602	B-1A
L2604	B-1A
L2605	A-2A
L2607	A-2A
L3001	B-3C
L3002	B-4C
PG	
PG2102	A-1B
PG2601	A-4A
PG2602	A-3D
PG2603	A-1C
PG3001	B-1C
PG3002	B-1B
PG3003	A-4B
Q	
Q2601	B-2A
Q2602	B-2A
Q2603	B-2A
Q2604	B-3A
Q2605	B-2A
Q2607	B-3A
Q2608	B-2A
Q2609	B-2B
Q2610	B-1B
Q2612	B-1A
Q3001	B-4D
Q3005	B-3D
R	
R2101	A-2C
R2102	B-2C
R2103	B-2C
R2104	B-3C
R2105	B-2C
R2106	B-3C
R2107	B-3C
R2108	B-3C
R2110	A-2C
R2111	B-2D
R2112	B-2D
R2115	B-2D
R2117	B-1C
R2121	B-1C
R2122	B-1C
R2123	A-2C
R2124	A-1C
R2126	B-1C
R2128	B-1C
R2130	A-1C
R2132	B-1C
R2142	B-3B
R2143	B-3B
R2145	B-3B
R2147	A-1A
R2148	A-1A
R2165	B-2C
R2167	B-2C
R2168	B-2C
R2172	B-2C
R2176	B-2C
R2178	B-2C
R2179	B-2C
R2181	A-1B
R2183	B-1B
R2184	A-1A
R2201	B-3C
R2204	B-3B
R2205	B-3B
R2207	B-3B
R2208	B-3B
R2209	B-3B
R2211	B-3B
R2213	B-3B
R2215	B-3B
R2217	A-1A
R2219	A-1A
R2225	B-3B
R2226	B-3B
R2601	B-2A
R2602	B-2A
R2603	B-4B
R2604	B-4B
R2605	B-4B
R2606	B-4B
R2607	B-4A
R2608	B-2A
R2609	B-4B
R2611	B-4B
R2613	B-4B
R2614	B-4B
R2616	B-4B
R2621	B-4B
R2622	B-4B
R2624	B-4B
R2625	B-4B
R2626	B-4B
R2628	B-4B
R2629	B-4A
R2641	B-2B
R2642	B-1B
R2646	B-2A
R2647	B-2A
R2648	B-2A
R2652	B-2A
R2657	B-2A
R2661	B-1A
R2662	B-1A
R3004	B-3C
R3005	B-4C
R3006	B-4C
R3007	B-4D
R3008	B-4D
R3009	B-4D
R3010	B-4D
R3013	B-3C
R3014	A-3D
R3015	A-4D
R3016	A-4C
R3018	A-4B
R3022	A-3B
R3026	A-3B
R3029	B-4C
R3030	B-3C
R3031	A-3C
R3032	A-3C
R3033	A-4B
R3037	B-3D
R3038	B-3D
R3039	B-3D
R3043	A-2C
R3051	A-3B
R3060	B-4C
R3061	B-4C
R3062	B-4C
R3063	B-3C
R3064	B-3C
R3065	B-3D
R3066	B-3C
R3067	B-3C
R3069	A-3B
R3070	A-3B
R3071	A-3B
R3072	B-1C
R3073	B-1C
R3076	B-3C
RT	
RT2101	A-1A
RT2201	A-1A
T	
T2601	A-2A
T2602	A-3A
X	
X2101	A-2C
X3001	A-3C
X3002	A-2C
ZD	
ZD2101	A-1B

LCS CIRCUIT BOARD[PATTERN No.JA1299-5]

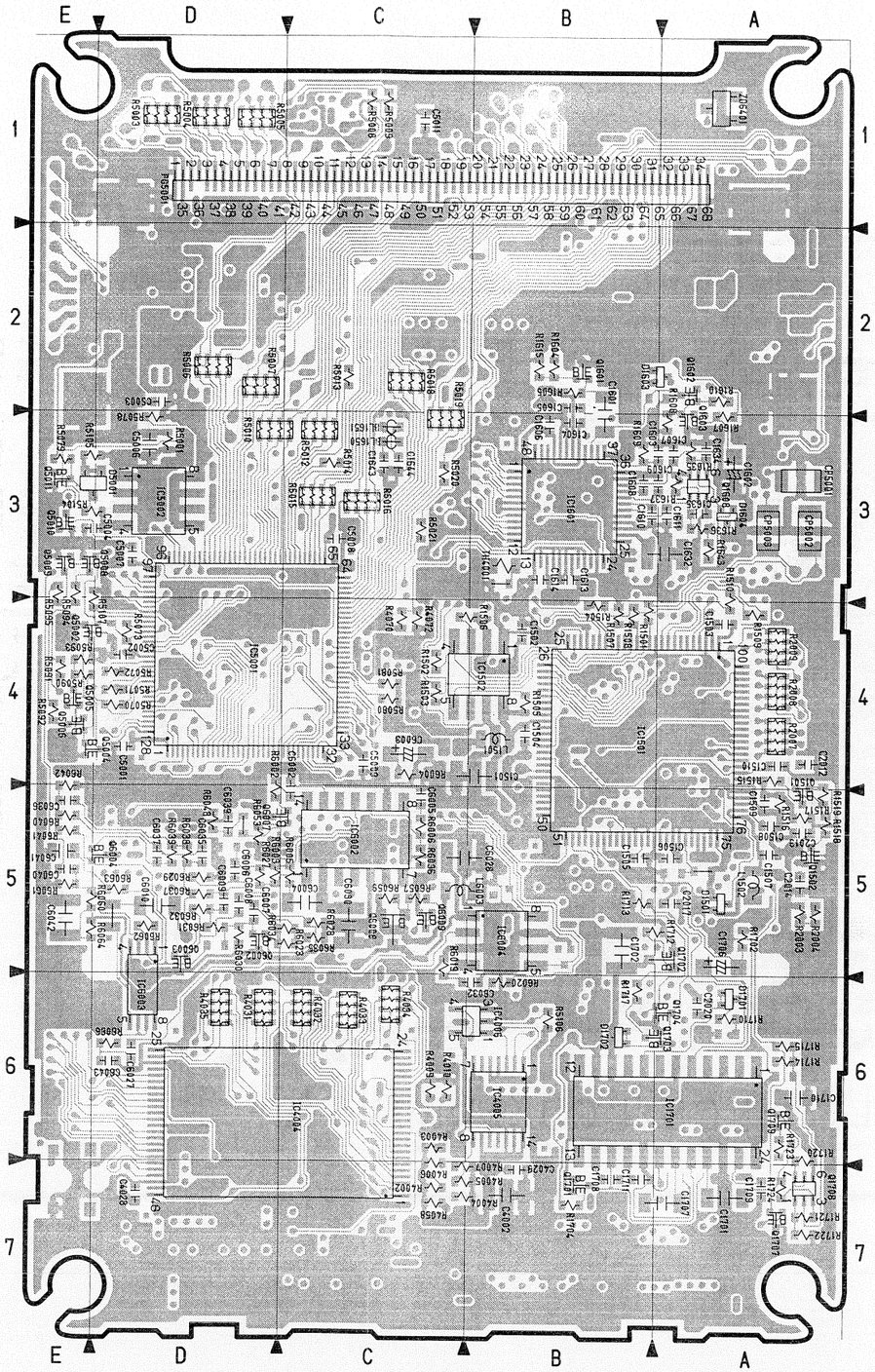


LCS(LCD/SWR)-SIDE A-

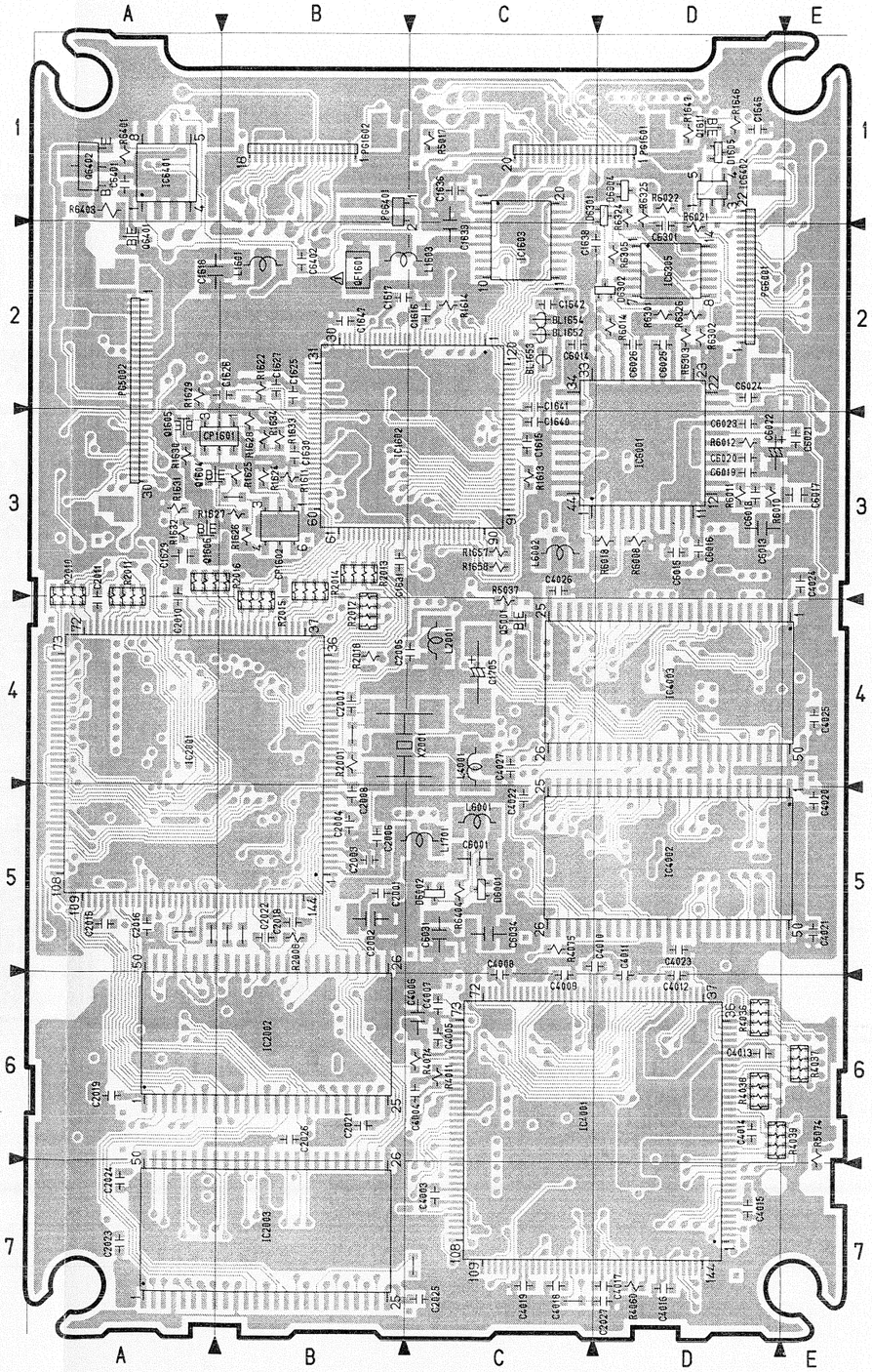


LCS(LCD/SWR)-SIDE B-

MAN CIRCUIT BOARD[PATTERN No.JA1299-5]



MAN(MAIN)-SIDE A-



MAN(MAIN)-SIDE B-

IDENTIFICATION OF PARTS LOCATION

MAN [MAIN]

Symbol No.	Parts Location
BL	
BL1650	A-3C
BL1651	A-3C
BL1652	B-2C
BL1653	B-2C
BL1654	B-2C
C	
C1501	A-4B
C1502	A-4B
C1503	A-4A
C1504	A-4B
C1505	A-5B
C1506	A-5A
C1507	A-5A
C1508	A-5A
C1509	A-5A
C1510	A-4A
C1601	A-2B
C1602	A-3A
C1603	A-3B
C1604	A-3B
C1605	A-2B
C1606	A-3B
C1607	A-3A
C1608	A-3B
C1609	A-3B
C1610	A-3B
C1611	A-3A
C1613	A-3B
C1614	A-3B
C1615	B-3C
C1616	B-2C
C1617	B-2B
C1618	B-2A
C1625	B-2B
C1626	B-2B
C1627	B-2B
C1629	B-3A
C1630	B-3B
C1631	B-3B
C1632	A-3A
C1633	B-2C
C1634	A-3A
C1635	A-3A
C1636	B-1C
C1638	B-2C
C1640	B-3C
C1641	B-2C
C1642	B-2C
C1643	A-3C
C1644	A-3C
C1646	B-1D
C1647	B-2B
C1701	A-7A
C1702	A-5B
C1705	B-4C
C1706	A-5A
C1707	A-7A
C1708	A-7B
C1709	A-7A
C1710	A-6A
C1711	A-7B
C2001	B-5B
C2002	B-5B
C2003	B-5B
C2004	B-5B
C2005	B-4C
C2006	B-5B
C2007	B-4B
C2008	B-5B
C2010	B-3A
C2011	B-4A
C2012	A-4A
C2013	A-5A
C2014	A-5A
C2015	B-5A
C2016	B-5A
C2017	A-5A
C2018	B-5B
C2019	B-6A
C2020	A-6A
C2021	B-6B
C2022	B-5B
C2023	B-7A
C2024	B-7A
C2025	B-7C
C2026	B-6B
C4002	A-7B
C4003	B-7C
C4004	B-6C
C4005	B-6C
C4006	B-6C
C4007	B-6C
C4008	B-6C
C4009	B-6C
C4010	B-5D
C4011	B-6D
C4012	B-6D
C4013	B-6D
C4014	B-6D
C4015	B-7D
C4016	B-7D
C4017	B-7D
C4018	B-7C
C4019	B-7C
C4020	B-5E
C4021	B-5E
C4022	B-5C
C4023	B-5D
C4024	B-3E
C4025	B-4E
C4026	B-3C
C4027	B-4C
C4028	A-7D
C4029	A-7B
C5001	A-4D
C5002	A-4D
C5003	A-2D
C5004	A-3E
C5006	A-3D
C5007	A-3D
C5008	A-3C
C5009	A-4C
C5011	A-1C
C6001	B-5C
C6002	A-5C
C6003	A-4C
C6004	A-5C
C6005	A-5C
C6006	A-5D
C6007	A-5D
C6008	A-5D
C6009	A-5D
C6010	A-5D
C6013	B-3D
C6014	B-2C
C6015	B-3D
C6016	B-3D
C6017	B-3E
C6018	B-3D
C6019	B-3D
C6020	B-3D
C6021	B-3E
C6022	B-3D
C6023	B-3D
C6024	B-2D
C6025	B-2D
C6026	B-2D
C6027	A-6D
C6028	A-5C
C6030	A-5C
C6031	B-5C
C6032	A-6B
C6034	B-5C
C6035	A-5D
C6036	A-5E
C6037	A-5D
C6039	A-5D
C6040	A-5E
C6041	A-5E
C6042	A-5E
C6043	A-6D
C6301	B-2D
C6401	B-1A
C6402	B-2B
CP	
CP1601	B-3B
CP1602	B-3B
CP5001	A-3A
CP5002	A-3A
CP5003	A-3A
D	
D1501	A-5A
D1603	A-2A
D1604	A-3A
D1605	B-1D
D1701	A-6A
D1702	A-6B
D5001	A-3E
D6001	B-5C
D6002	B-5C
D6301	B-1D
D6302	B-2D
D6304	B-1D
IC	
IC1501	A-4B
IC1502	A-4B
IC1601	A-3B
IC1602	B-3C
IC1603	B-2C
IC1701	A-6A
IC2001	B-4A
IC2002	B-6B
IC2003	B-7B
IC4001	B-6C
IC4002	B-5D
IC4003	B-4D
IC4004	A-6C
IC4005	A-6B
IC4006	A-6B
IC5001	A-4D
IC5002	A-3D
IC6001	B-3D
IC6002	A-5C
IC6003	A-6D
IC6004	A-5B
IC6305	B-2D
IC6401	B-1A
IC6402	B-1D
L	
L1501	A-4B
L1502	A-5A
L1601	B-2B
L1603	B-2B
L1701	B-5C
L2001	B-4C
L4001	B-4C
L6001	B-5C
L6002	B-3C
L6003	A-5C
PG	
PG1601	B-1C
PG1602	B-1B
PG5001	A-1C
PG5002	B-2A
PG6001	B-2D
PG6401	B-1B
Q	
Q1501	A-5A
Q1502	A-5A
Q1601	A-2B
Q1602	A-2A
Q1603	A-3A
Q1604	B-3A
Q1605	B-3A
Q1606	B-3A
Q1608	A-3A
Q1611	B-1D
Q1701	A-7B
Q1702	A-5A
Q1703	A-6A
Q1704	A-6A
Q1707	A-7A
Q1708	A-7A
Q1709	A-6A
Q5001	B-4C
Q5002	A-4E
Q5004	A-4E
Q5005	A-4E
Q5006	A-4E
Q5008	A-3E
Q5009	A-3E
Q5010	A-3E
Q5011	A-3E
Q6002	A-5D
Q6003	A-5D
Q6004	A-5D
Q6007	A-5D
Q6008	A-5C
Q6009	A-5C
Q6401	B-2A
Q6402	B-1A
QF	
QF1601	B-2B
R	
R1501	A-4B
R1502	A-4C
R1503	A-4C
R1504	A-4B
R1505	A-4B
R1506	A-4C
R1507	A-4B
R1508	A-4B
R1509	A-4A
R1510	A-3A
R1515	A-4A
R1516	A-5A
R1517	A-5A
R1518	A-5A
R1519	A-5A
R1604	A-2B
R1605	A-2B
R1607	A-3A
R1608	A-3A
R1609	A-3B
R1610	A-2A
R1611	B-3B
R1613	B-3C
R1614	B-2C
R1615	A-2B
R1622	B-2B
R1624	B-3B
R1625	B-3B
R1626	B-3B
R1627	B-3B
R1628	B-3B
R1629	B-2A
R1630	B-3A
R1631	B-3A
R1632	B-3A
R1633	B-3B
R1634	B-3B
R1635	A-3A
R1636	A-3A
R1637	A-3A
R1643	A-3A
R1646	B-1D
R1647	B-1D
R1657	B-3C
R1658	B-3C
R1702	A-5A
R1704	A-7B
R1710	A-6A
R1712	A-5B
R1713	A-5B
R1714	A-6A
R1715	A-6A
R1717	A-6B
R1720	A-6A
R1721	A-7A
R1722	A-7A
R1723	A-6A
R1724	A-7A
R2001	B-4B
R2003	A-5A
R2004	A-5A
R2006	B-5B
R2007	A-4A
R2008	A-4A
R2009	A-4A
R2010	B-3A
R2011	B-3A
R2012	B-4B
R2013	B-3B
R2014	B-3B
R2015	B-4B
R2016	B-3A
R2018	B-4B
R4002	A-7C
R4003	A-6C
R4004	A-7C
R4005	A-7C
R4006	A-7C
R4007	A-7C
R4009	A-6C
R4010	A-6C
R4011	B-6C
R4031	A-6D
R4032	A-6C
R4033	A-6C
R4034	A-6C
R4035	A-6D
R4036	B-6D
R4037	B-6E
R4038	B-6D
R4039	B-6D
R4058	A-7C
R4060	B-7D
R4070	A-4C
R4074	B-6C
R4075	B-5C
R5001	A-3D
R5003	A-1D
R5004	A-1D
R5005	A-1D
R5006	A-2D
R5007	A-2D
R5008	A-1C
R5009	A-1C
R5010	A-3D
R5012	A-3C
R5013	A-2C
R5014	A-3C
R5015	A-3C
R5016	A-3C
R5017	B-1C
R5018	A-2C
R5019	A-3C
R5020	A-3C
R5021	A-3C
R5037	B-4C
R5070	A-4D
R5071	A-4D
R5072	A-4D
R5073	A-4D
R5074	B-6E
R5078	A-3D
R5079	A-3E
R5080	A-4C
R5081	A-4C
R5090	A-4E
R5091	A-4E
R5092	A-4E
R5093	A-4E
R5094	A-3E
R5095	A-3E
R5104	A-3E
R5105	A-3E
R5106	A-6B
R5107	A-3E
R6002	A-5D
R6003	A-5D
R6004	A-4C
R6005	A-5C
R6006	A-5C
R6008	B-3D
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R6011	B-3D
R6012	B-3D
R6014	B-2D
R6018	B-3D
R6019	A-5C
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R6021	B-2D
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R6023	A-5C
R6027	A-5D
R6028	A-5C
R6029	A-5D
R6030	A-5D
R6031	A-5D
R6032	A-5D
R6034	A-5C
R6035	A-5C
R6036	A-5C
R6037	A-5D
R6038	A-5D
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R6040	A-5E
R6041	A-5E
R6042	A-4E
R6048	A-5D
R6053	A-5D
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R6059	A-5C
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R6302	B-2D
R6303	B-2D
R6305	B-2D
R6324	B-1D
R6325	B-1D
R6326	B-2D
R6401	B-1A
R6403	B-1A
R6404	B-5C
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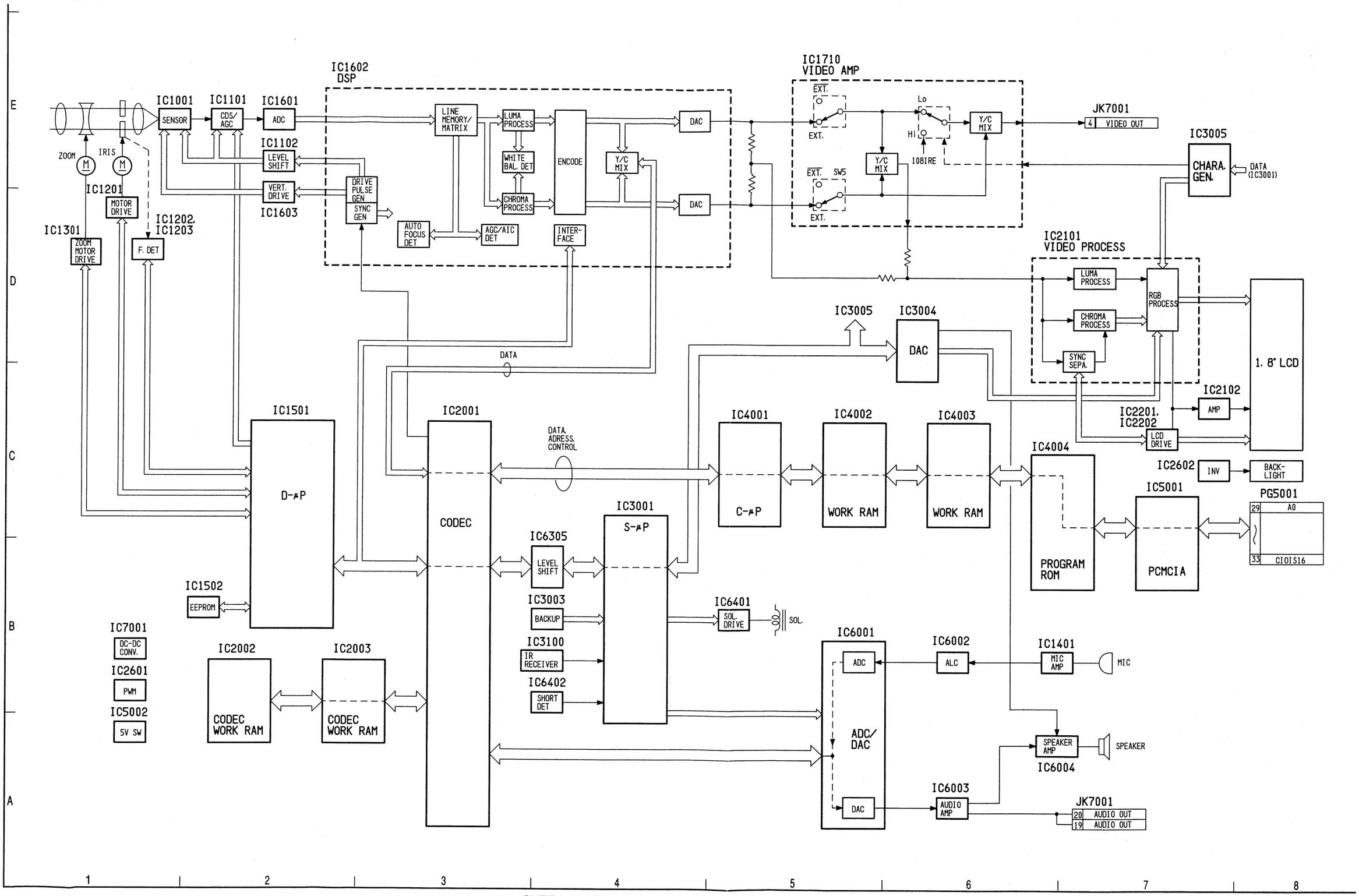
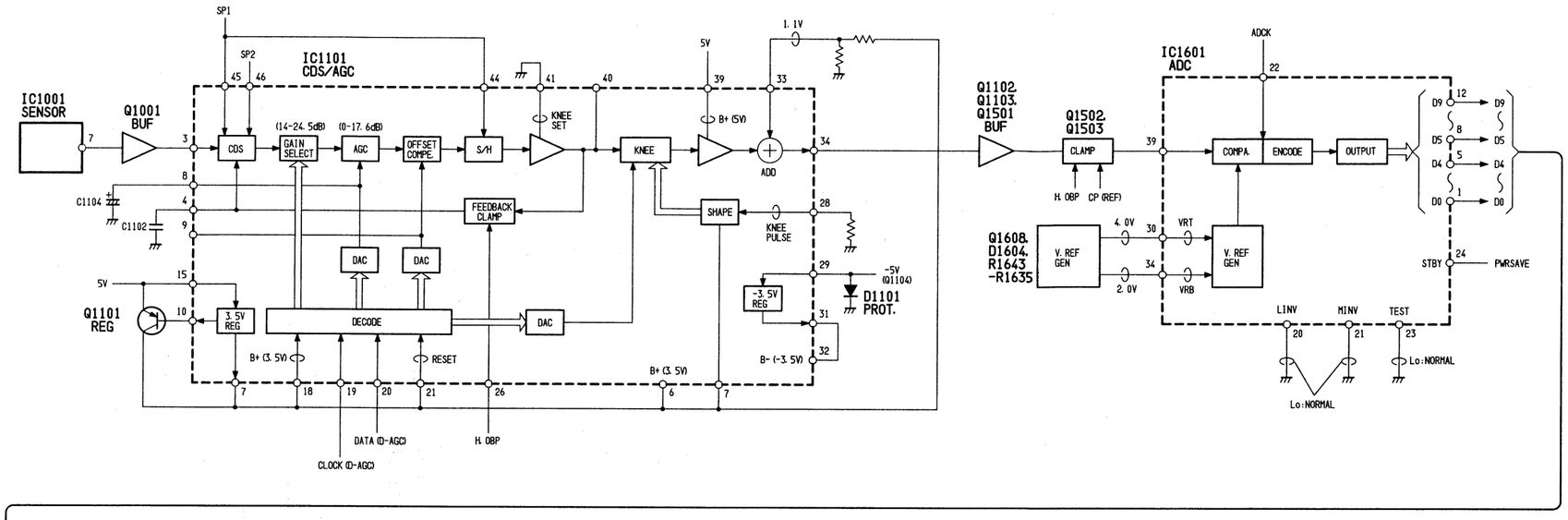
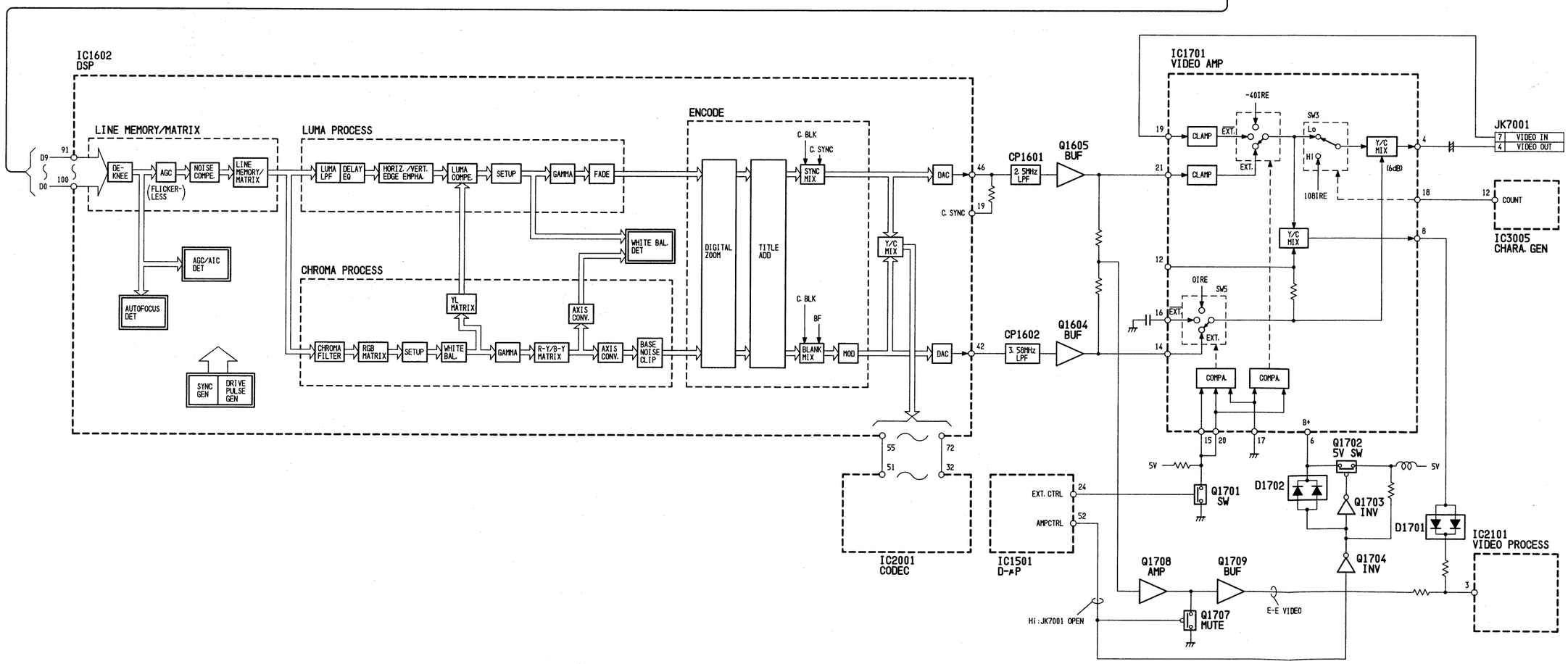
TH4001	A-3B
X	
X2001	B-4B
ZD	
ZD6401	A-1A

OVERALL BLOCK DIAGRAM

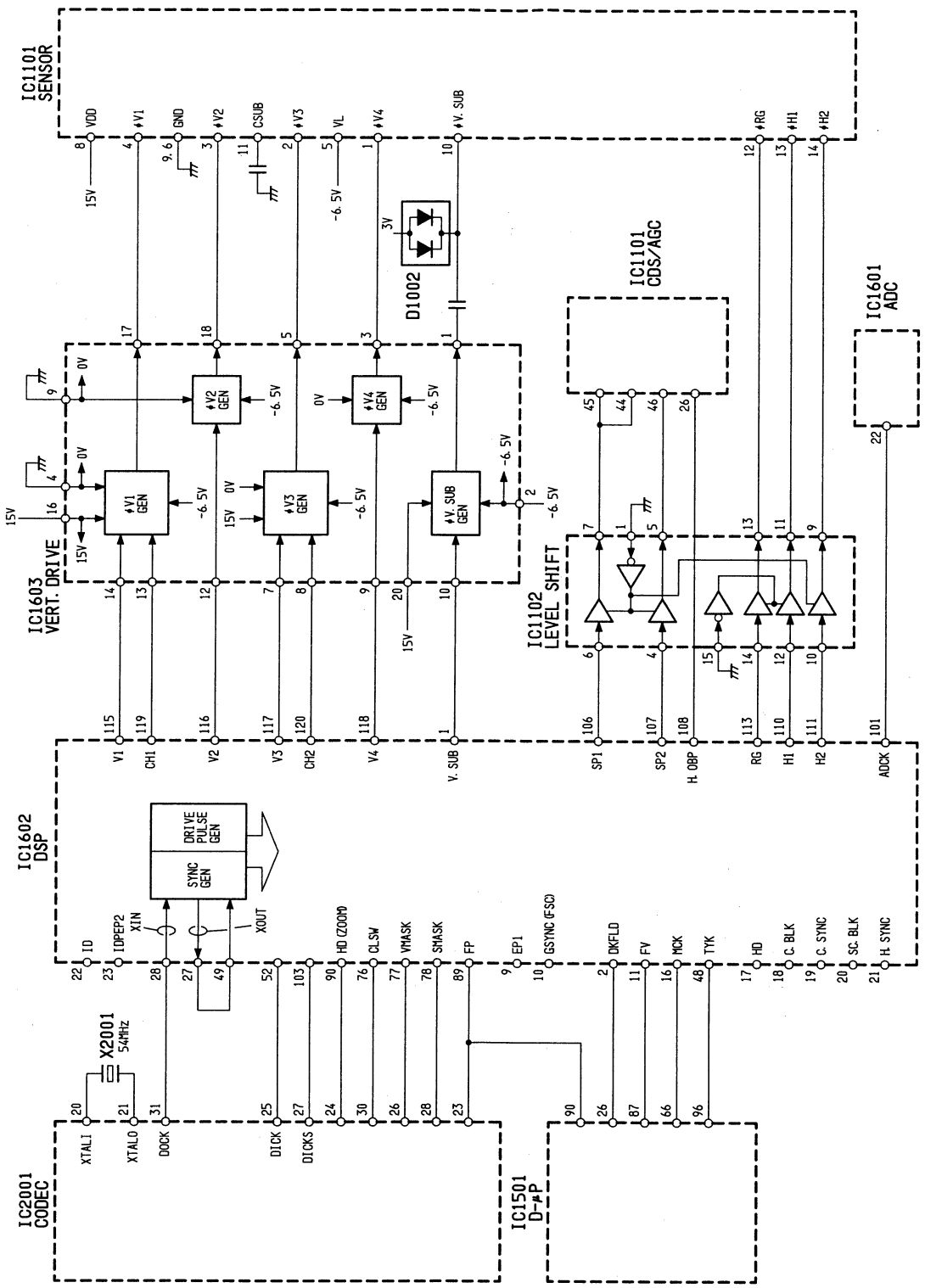


CAMERA/VIDEO BLOCK DIAGRAM

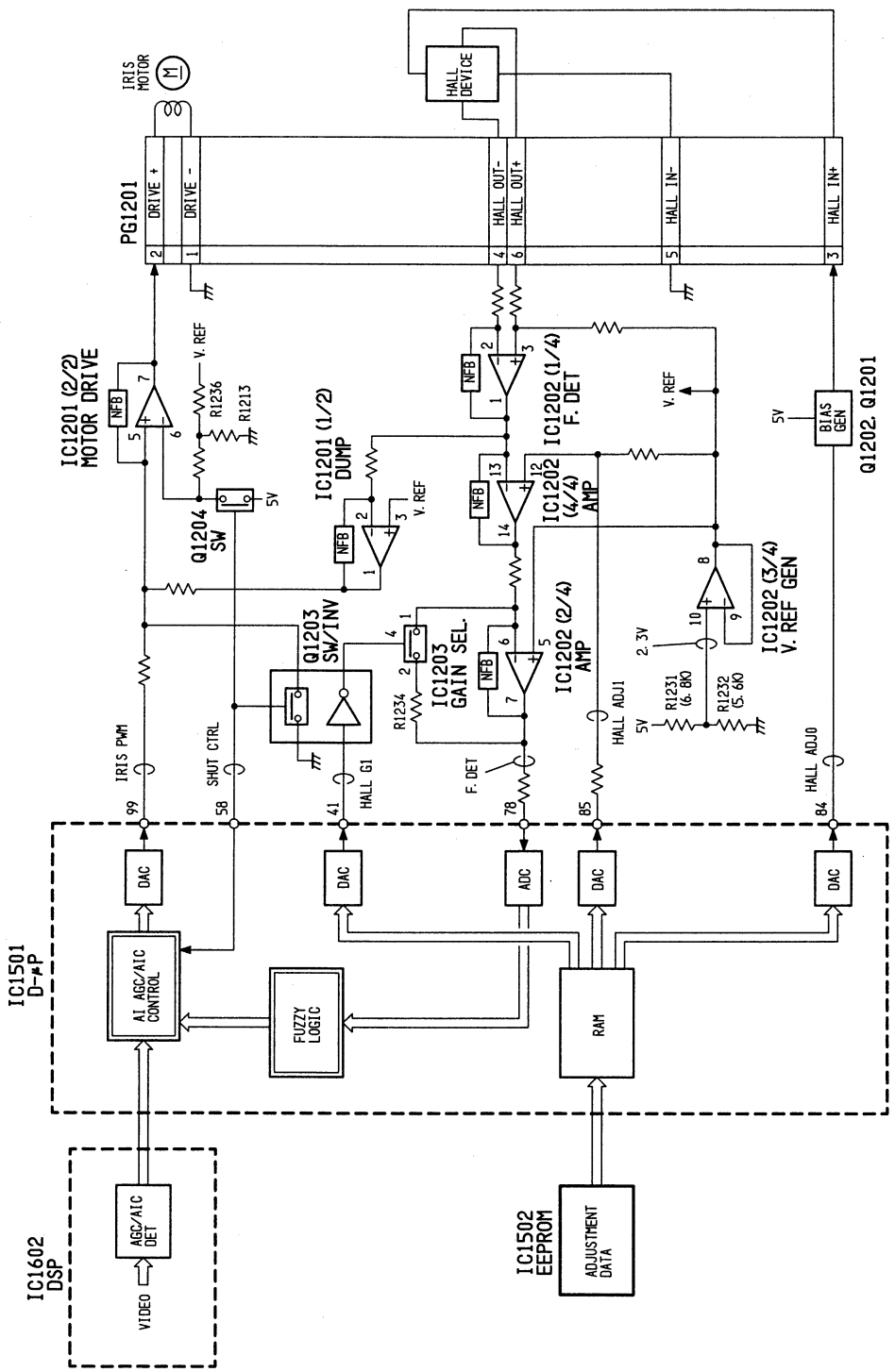




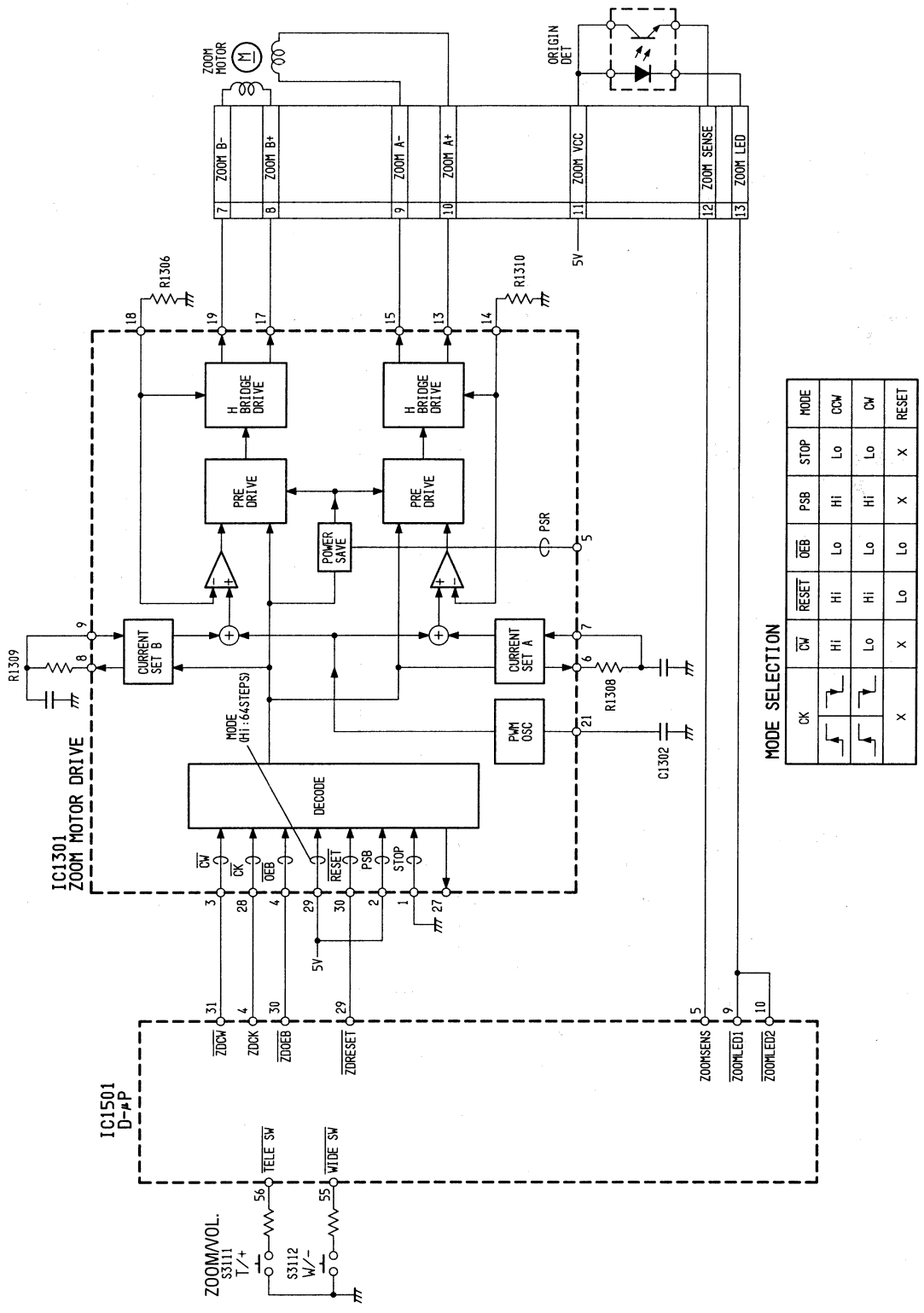
SENSOR DRIVE BLOCK DIAGRAM



IRIS MOTOR BLOCK DIAGRAM



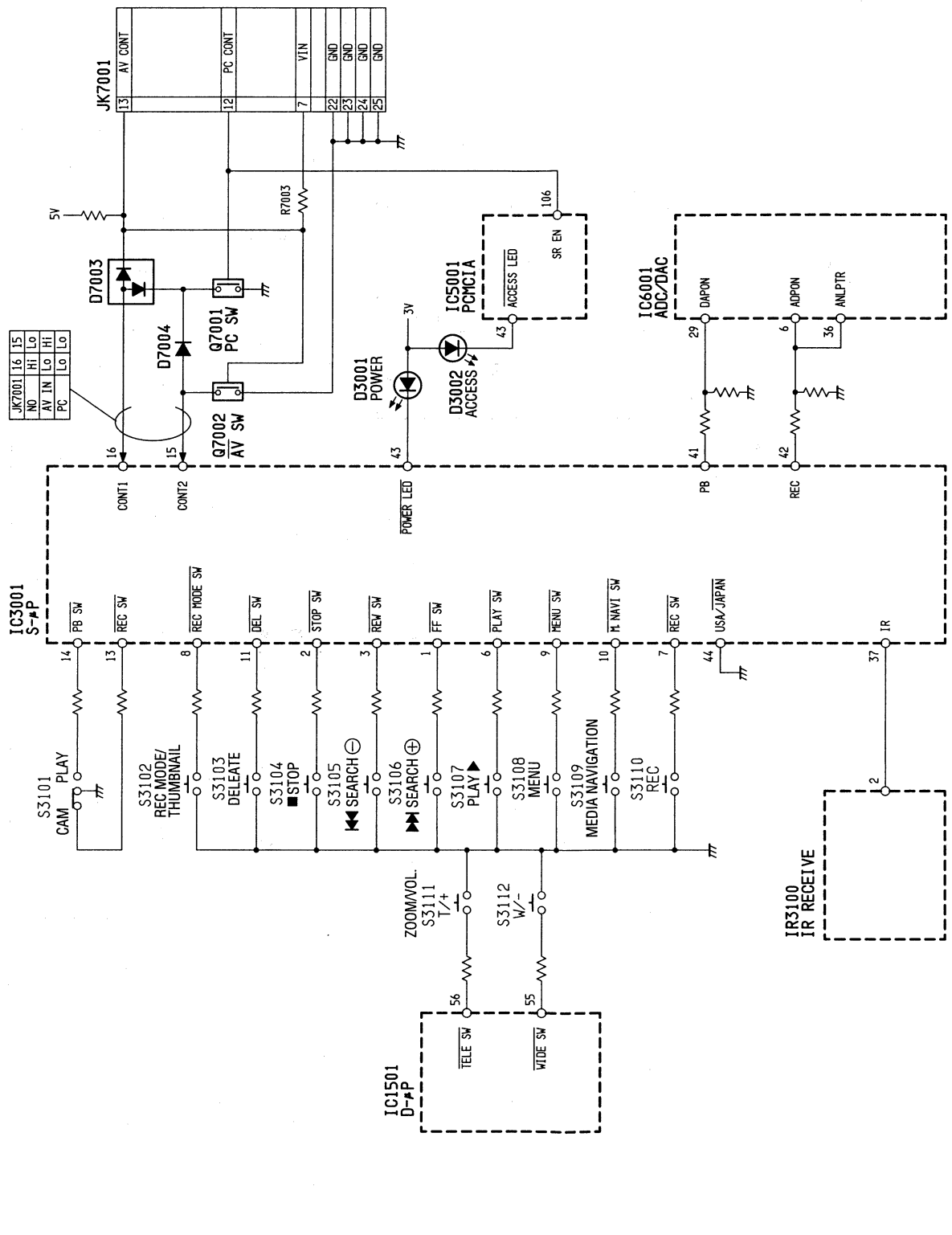
ZOOM MOTOR BLOCK DIAGRAM



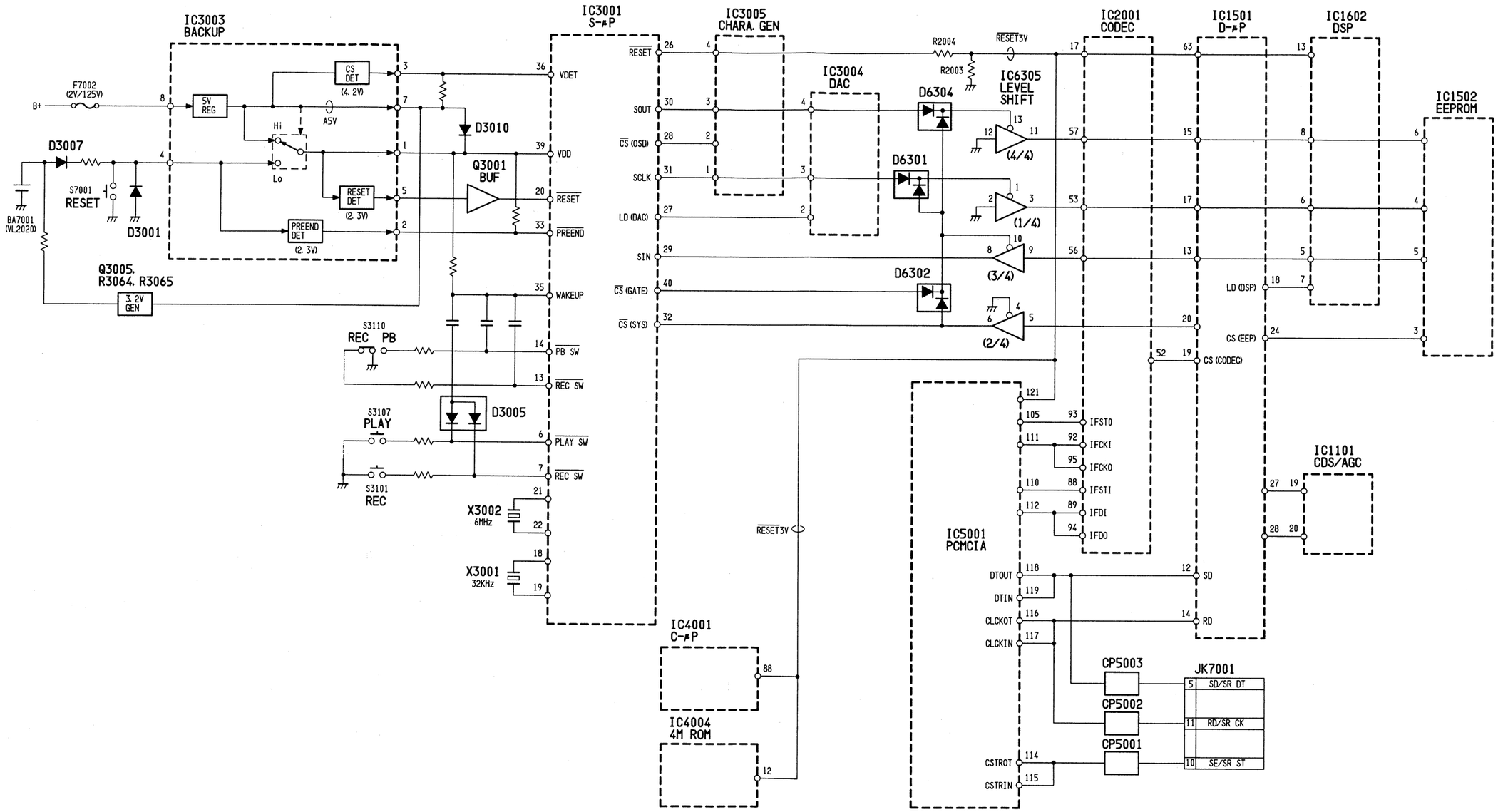
MODE SELECTION

CK	CW	RESET	OEB	PSB	STOP	MODE
↓	Hi	Hi	Lo	Hi	Lo	CCW
↓	Lo	Hi	Lo	Hi	Lo	CW
X	X	Lo	Lo	X	X	RESET

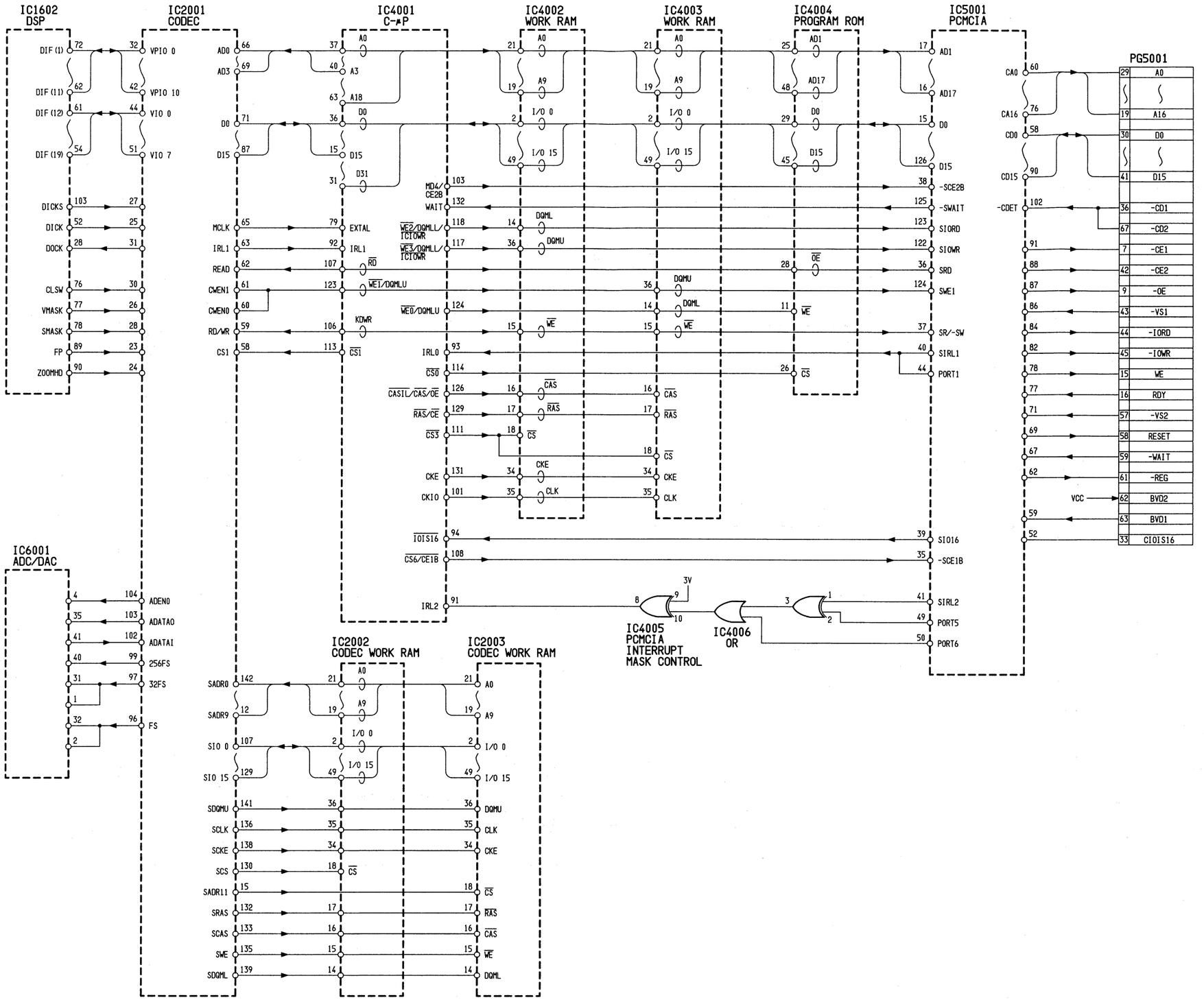
KEY FUNCTION BLOCK DIAGRAM



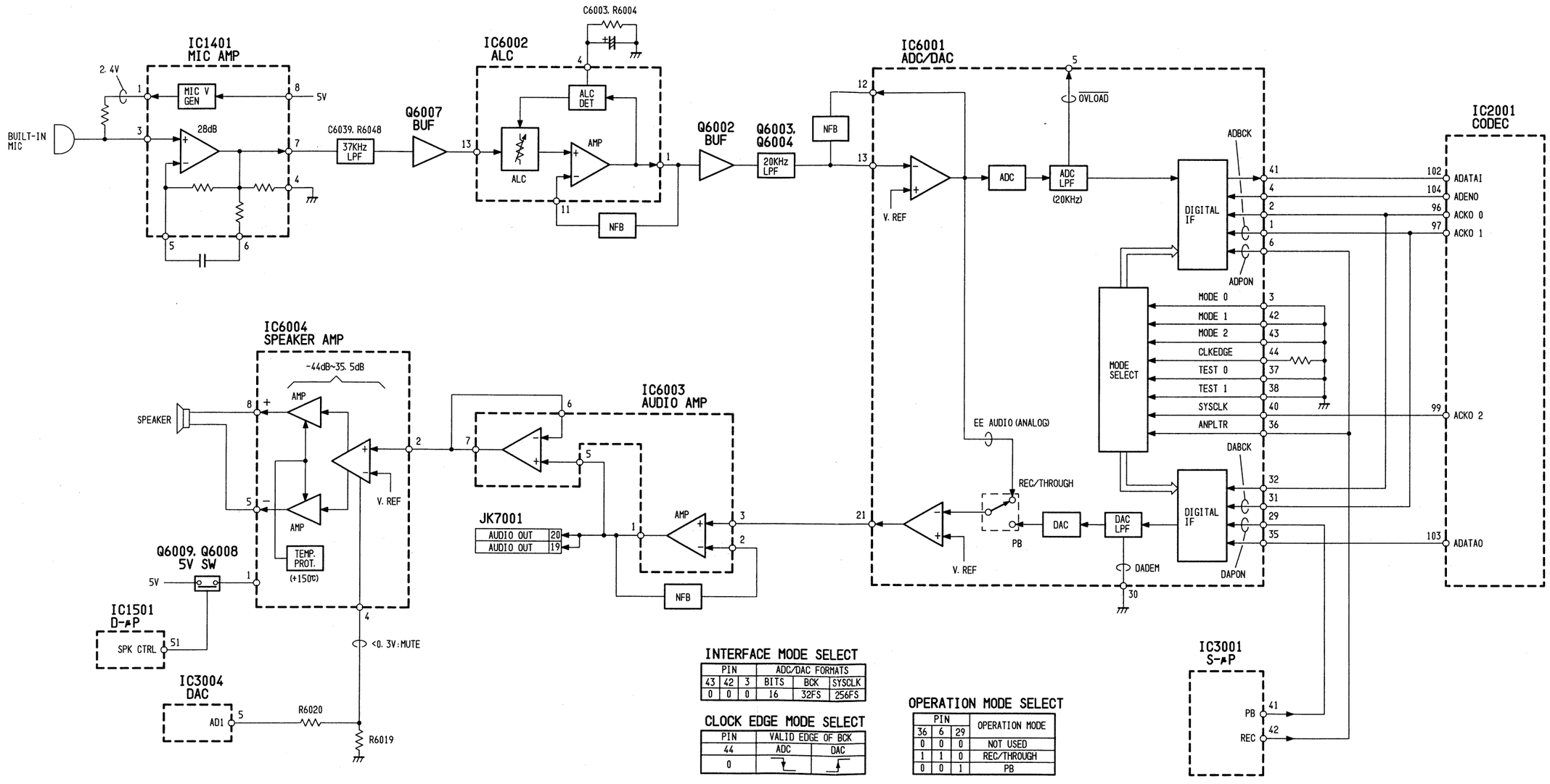
SYSTEM CONTROL BLOCK DIAGRAM



CODEC/PCMCIA BLOCK DIAGRAM



AUDIO BLOCK DIAGRAM



INTERFACE MODE SELECT

PIN			ADC/DAC FORMATS		
43	42	3	BITS	BCK	SYSCLK
0	0	0	16	32FS	256FS

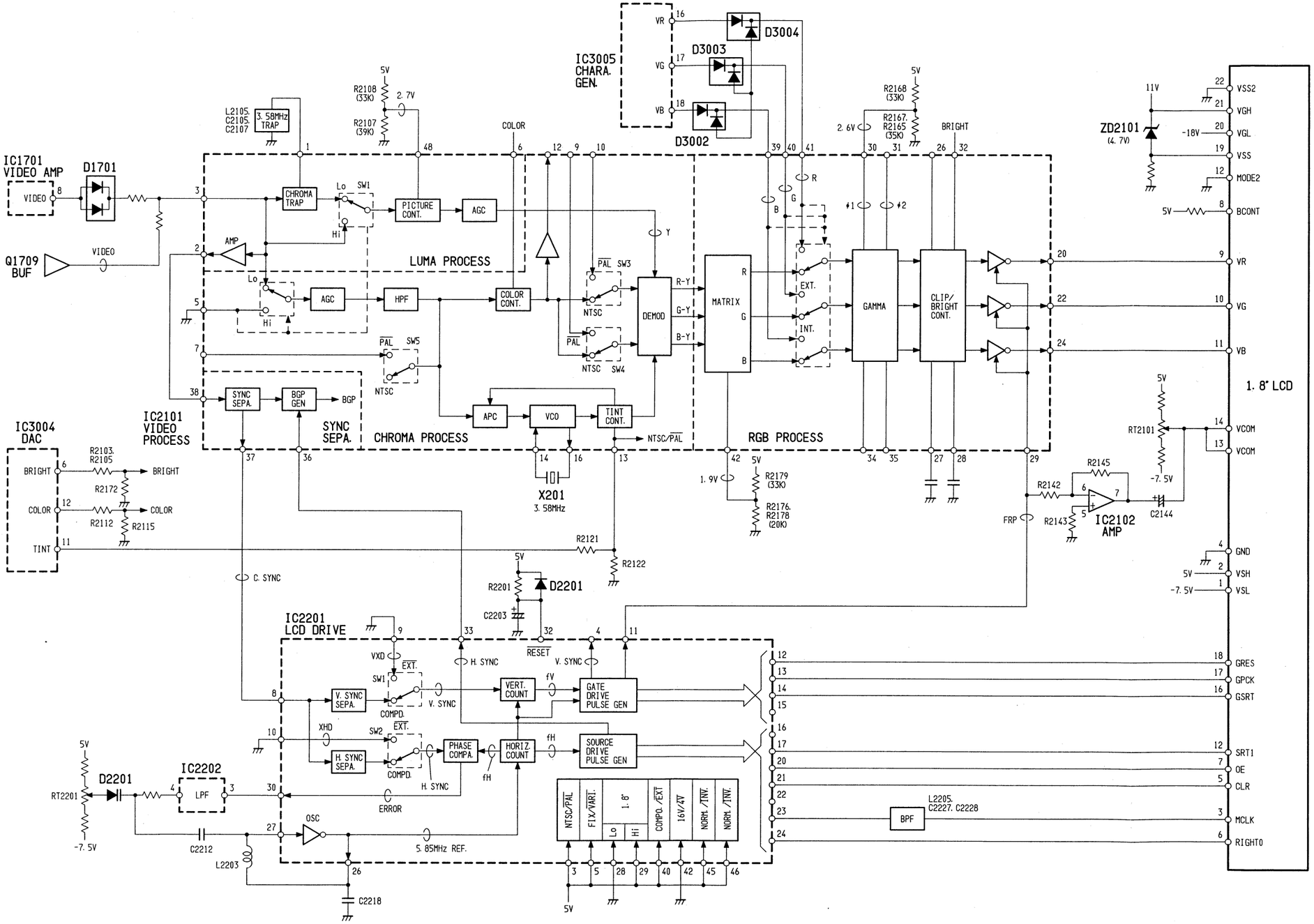
CLOCK EDGE MODE SELECT

PIN	VALID EDGE OF BCK	
44	ADC	DAC
0	↓	↑

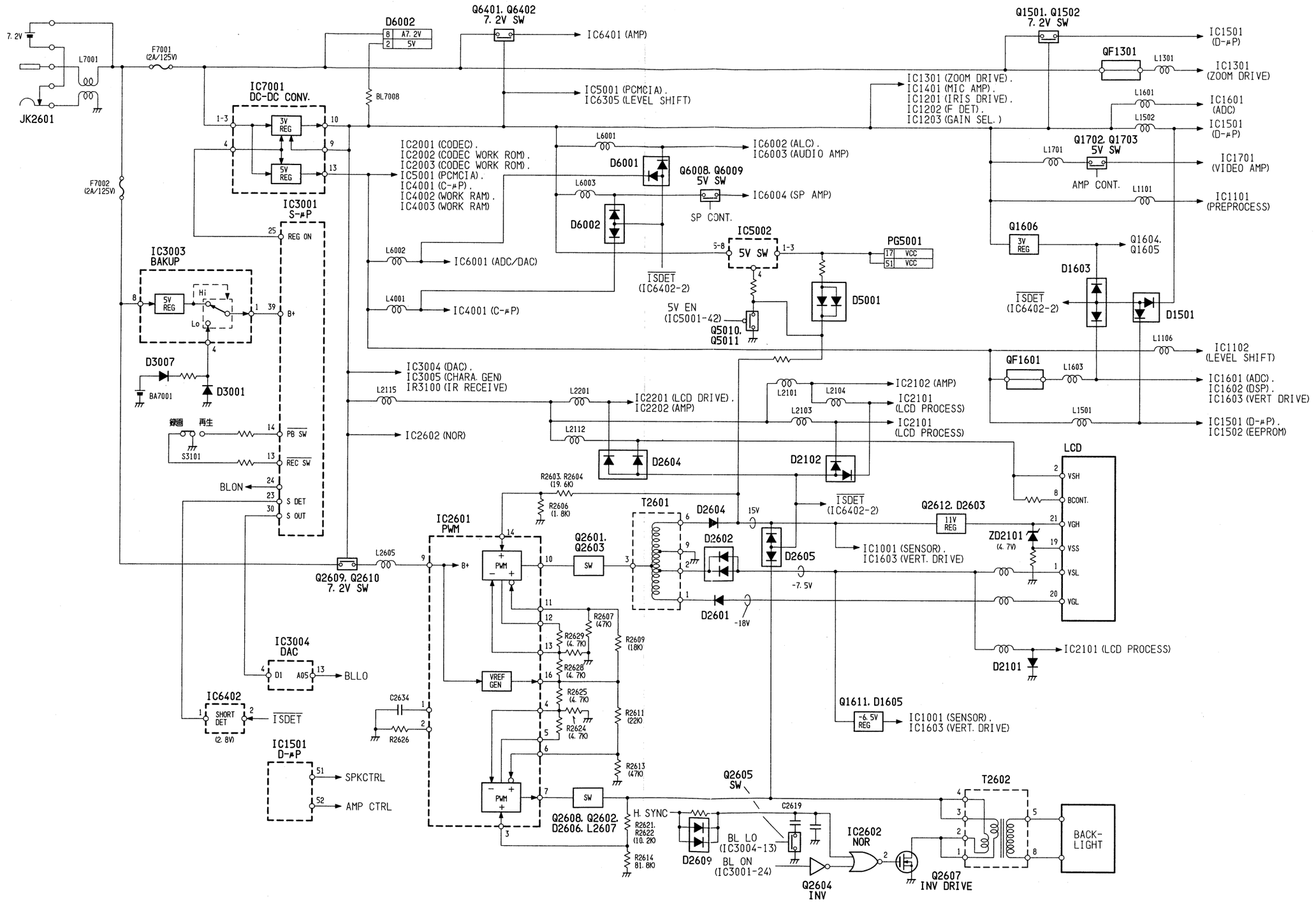
OPERATION MODE SELECT

PIN			OPERATION MODE
36	6	29	
0	0	0	NOT USED
1	1	0	REC/THROUGH
0	0	1	PB

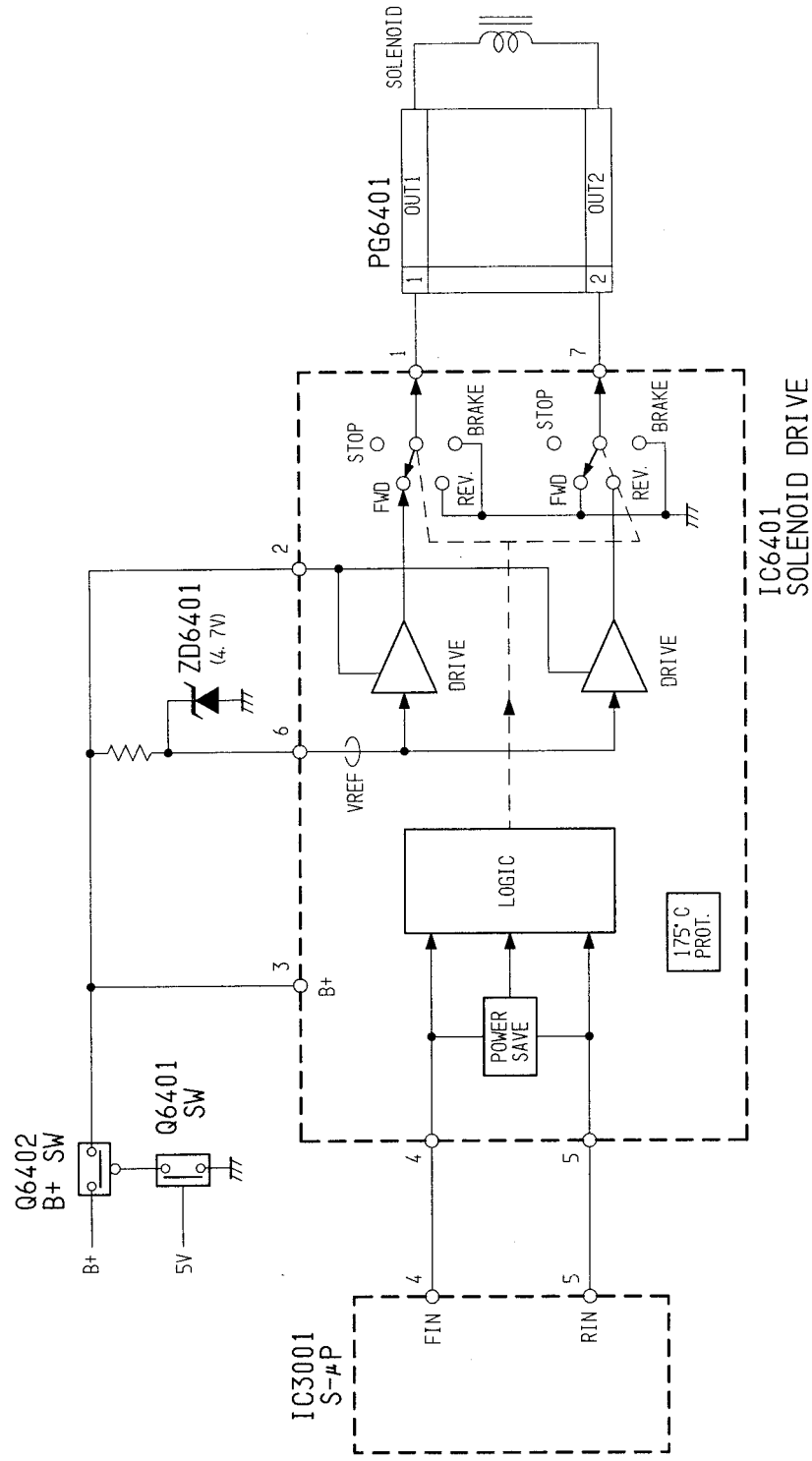
LCD DRIVE BLOCK DIAGRAM



POWER BLOCK DIAGRAM



SOLENOID DRIVE BLOCK DIAGRAM



HITACHI

MPEG CAM TK No.6718E Image & Information Media Systems Division, Tokai
MP-EG1A

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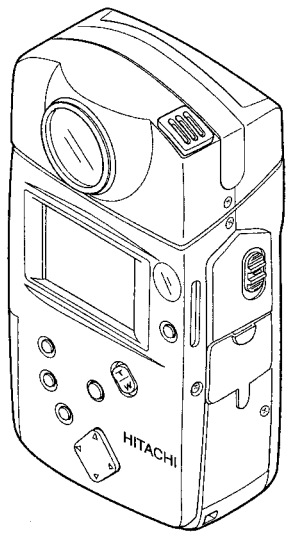
Printed in Japan (HI)

340

HITACHI

SERVICE MANUAL



TK | No.6708E-1

MP-EG1A

SUPPLEMENT

This service manual is to supplement the previous menual (No.6708E) and include the electrical adjustment.
Use this together with the manual listed below.

Name of manual	Manual No.
MP-EG1A	6708E

CAUTION (LCD Display)

LCD display; the liquid crystal display (LCD) panel is mode by highly precise technology.
More than 99.99% of its picture elements (pixels) are effective, but some (less than 0.01%) may appear as colored bright dots. This mode not indicate a fault as the LCD panel stretches the limits of current technology.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts have special safety-related characteristics. These are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for a higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual. Electrical components having such features are identified by marking with a ⚠ on the schematics and the parts list in this Service Manual. The use of a substitute replacement component which does not have the same safety characteristics as the HITACHI recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards. Product safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current HITACHI Service Manual. A subscription to, or additional copies for, HITACHI Service Manual may be obtained at a nominal charge from HITACHI SALES CORPORATION.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

MPEG CAMERA

May 1997 Image & Information Media Systems Division, Tokai

CONTENTS

CHAPTER 1 LIST OF EQUIPMENT, JIGS, ETC. AND ELECTRICAL ADJUSTMENT

◆ **List of Equipment, Jigs, etc.**

1. Equipment and jigs for Adjustment 1-1
2. Extension Cables 1-1
3. Adjustment Charts 1-1
4. Connecting Extension Cables 1-2

◆ **Electrical Adjustment**

1. Preparations for Starting Adjustment 1-2
2. Connecting Test Equipment and Jigs 1-3
   2-1. Connections 1-3
   2-2. Setting up Test Equipment 1-3
   2-3. Setting up the MP-EG1A 1-3
3. List of Adjustments Required After Major Components are Replaced 1-4
4. Adjustment Procedure 1-4
   4-1. Starting the Adjustment Program 1-4
   4-2. Initial Setting (DATA INITIALIZE) 1-5
   4-3. Electronic Volume Adjustment (ELECTRIC VOLUME) 1-5
   [1] CDS offset adjustment 1-6
   [2] Sampling pulse adjustment 1-6
   4-4. Picture Adjustment (ADJUSTMENT) 1-6
   [1] Iris adjustment 1-7
   [2] Knee adjustment 1-7
   [3] Shutter adjustment 1-8
   [3-A] Shutter adjustment No.1 1-8
   [3-B] Shutter adjustment No.2 1-9
   [4] Matrix adjustment 1-9
   [5] White balance adjustment 1-10
   [6] Chroma gain Adjustment 1-10
   4-5. Spot Noise Adjustment 1-11
   4-6. Backfocus Adjustment 1-12
   4-7. LCD Adjustment 1-13
   [1] PLL adjustment 1-13
   [2] LCD voltage adjustment 1-13
5. Error Messages 1-14

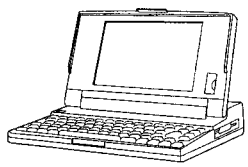
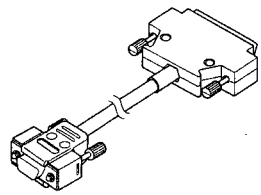
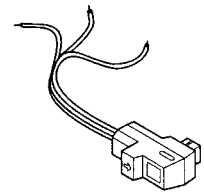
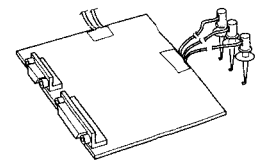
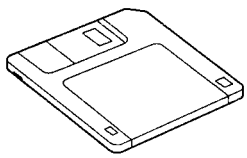
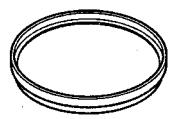
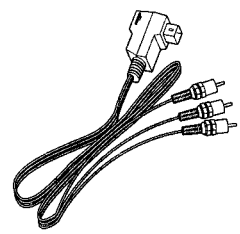
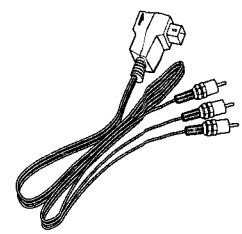
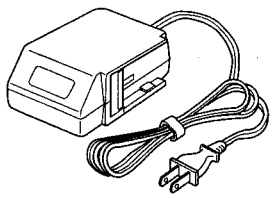
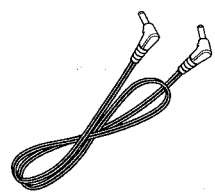
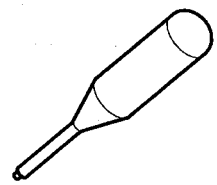
◆ **Corrections of Voltage Charts** 1-15

CHAPTER 1 LIST OF EQUIPMENT, JIGS, ETC. AND ELECTRICAL ADJUSTMENT

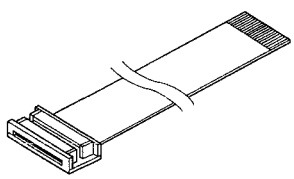
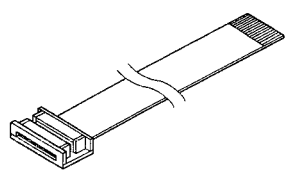
List of Equipment, Jigs, etc.

1. Equipment and jigs for adjustment

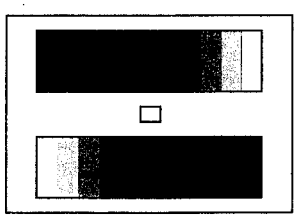
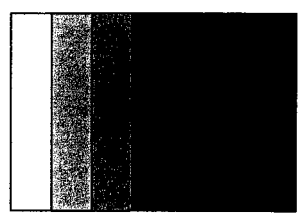
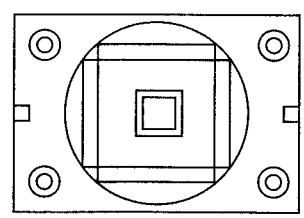
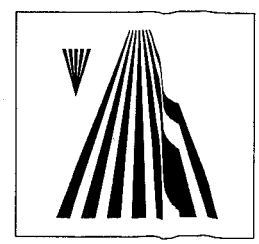
[●]: Newly assigned jigs, [★]: Generally available,
[◎]: Provided accessories, [◆]: Optional

1. Personal computer [★] 	**2.** RS-232C cable [★] (D-SUB 9-pin/25-pin) 	**3.** DSP AV output jig No.7099456 	**4.** DSP interface jig No.7099448 
5. Adjustment floppy disk[●] No. 7069190 	**6.** C12 color temperature conversion filter No.7099369 	**7.** AV output cable [◎] 	**8.** AV input cable [◆] 
9. AC adapter/charger [◎] 	**10.** DC power cord [◎] 	**11.** Backfocus adjustment driver No.7099205 	

2. Extension Cables

1. 30-pin extension cable[●] No. JP21551 	**2.** 22-pin extension cable[●] No. JP21561 		

3. Adjustment Charts

1. Grayscale chart 	**2.** Color bar chart 	**3.** Resolution chart 	**4.** Backfocus chart 

4. Connecting Extension Cables

The following diagram shows the sections where the extension cables shown in item 2 above are to be connected:

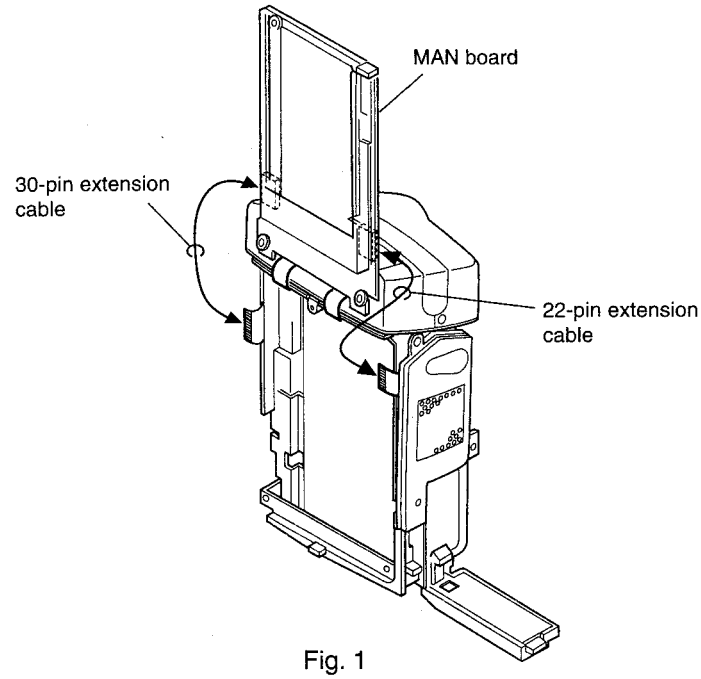


Fig. 1

Electrical Adjustment

1. Preparations for Starting Adjustment

■ Test equipment and charts necessary for adjustment

1) Dual-trace oscilloscope with at least 10MHz bandwidth and 10:1 probe
2) Vectorscope
3) Digital DC voltmeter (DVM)
4) Monitor TV
5) 3100 K light box
6) DC power supply (5V/1A)
7) Bulb-type fluorescent lamp (equivalent to 100 W)
8) Grayscale chart
9) Color bar chart
10) Resolution chart
11) Backfocus chart

■ Setup for test equipment and cautions

1) If necessary, remove dirt from fluorescent lamp and box panel of light box. (If the fluorescent lamp dims or flickers, replace it.)
2) Use a 10:1 oscilloscope probe.
3) Synchronize the oscilloscope internally.
4) Set the oscilloscope time axis to 10 µs/div.
5) When measuring the video signal at the video output jack on the oscilloscope, terminate the jack with a 75 ohm resistor. (If termination resistor is not available, connect a monitor TV to the jack.)

2. Connecting Test Equipment and Jigs

2-1. Connections

Connect the MP-EG1A, test equipment and jigs as shown in Fig. 2.

1) Mount the MP-EG1A on a stable object such as a tripod.
2) Connect the MP-AC1A AC adapter (provided) to the MP-EG1A via the DC power cord to supply power to it.
3) Connect a DSP AV output jig to the MP-EG1A's AV output jack, and then connect the AV output cable (provided) to the DSP output jig.
4) Connect the AV output cable to a monitor TV or an oscilloscope.
5) Connect the DSP AV output jig to a DSP interface jig, and use an RS-232C cable to connect the DSP interface jig to a personal computer.
6) Connect a DC power supply (DC 5V/1A) to the DSP interface jig.
7) To adjust the LCD, disconnect the DSP AV output jig and connect an AV input cable.

2-2. Setting up Test Equipment

1) Set the distance from the MP-EG1A (lens surface) to the chart (light box) at 65 cm.
2) Point the MPEG camera at the chart so as to fill the monitor screen.

2-3. Setting up the MP-EG1A

1) Set the power switch to "CAM".
2) Set the LCD display to "OFF".
3) **Specify ENERGY SAVE OFF on the initial setting menu of the MP-EG1A.**

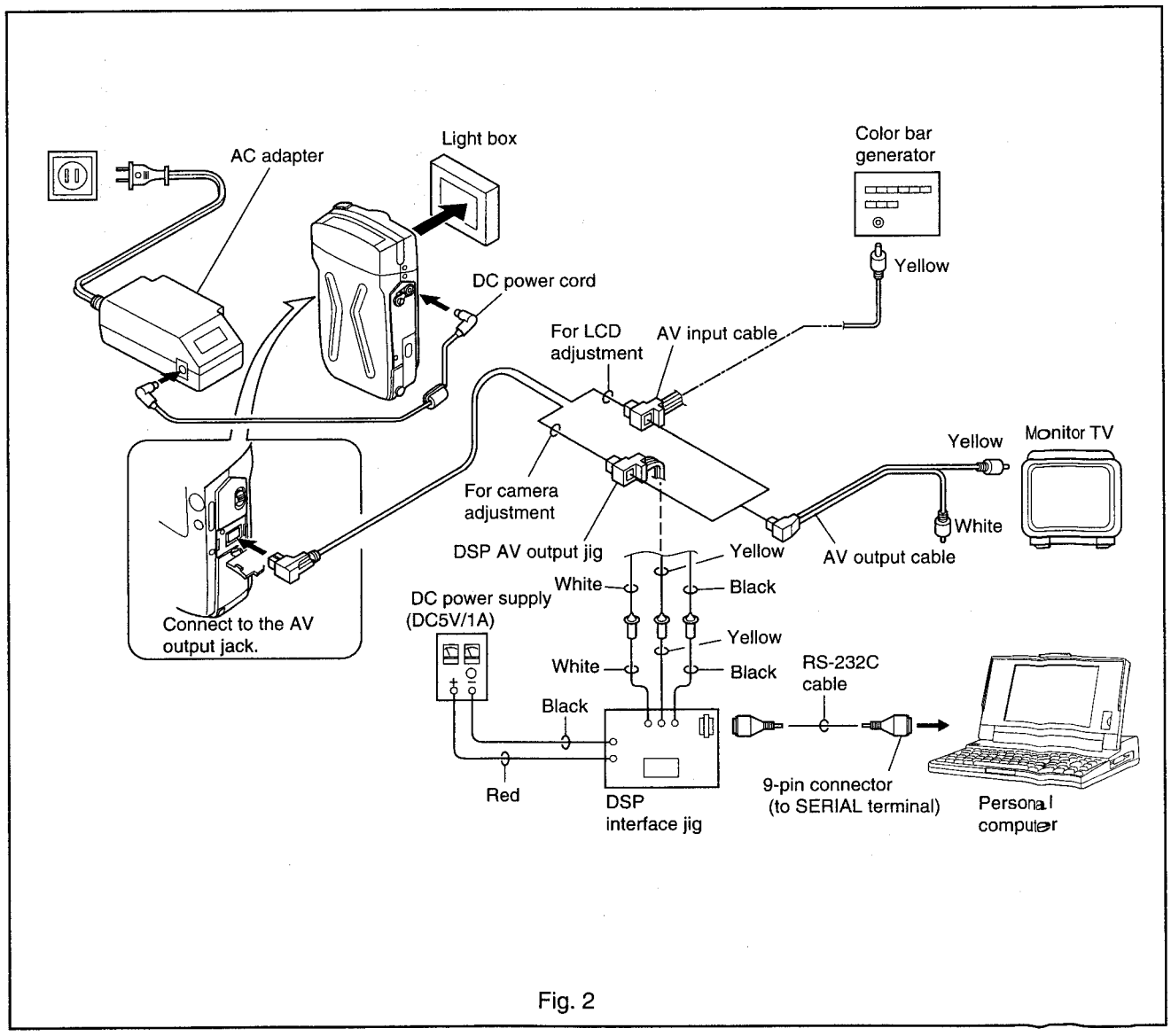


Fig. 2

3. List of Adjustments Required After Major Components are Replaced

The following table lists the items which must at least be adjusted when major components are replaced. If several components or peripheral circuits of the major components are replaced, adjustment of more items may be necessary; therefore, use the table as a reference.

IMPORTANT: The factory default data is stored in IC1502 (EEPROM). After IC1502 (EEPROM) or the MAIN board is replaced, perform "[A] Data Initialize" on item 4-2.

Adjustment item (adjust by following the order listed)	Description of Major Component									
	SP board	LEN board	MAIN board	Lens ass'y	IC1001 (SEN)	IC1101 (CDS)	IC1201 IC1202	IC1501 (μP)	IC1502 (EROM)	IC1602 (DSP)
[A] Data Initialize			●						●	
[B] Electronic Volume										
[1] CDS offset adjustment	●		●			●			●	
[2] Sampling pulse adjustment			●						●	●
Backfocus Adjustment	●			●	●					
[C] Picture Adjustment										
[1] Iris adjustment	●	●	●	●	●		●	●	●	●
[2] Knee adjustment	●		●			●			●	
[3] Shutter adjustment										
[A] Shutter adjustment No. 1	●	●	●	●	●				●	
[B] Shutter adjustment No. 2	●	●	●	●	●				●	
[4] Matrix adjustment	●		●		●				●	
[5] White balance adjustment	●		●		●				●	
[6] Chroma gain adjustment	●		●		●				●	
[D] Spot Noise Adjustment			●		●				●	

4. Adjustment Procedure

IMPORTANT:

■ Error messages

If error messages appear on the computer display during adjustment, perform troubleshooting, referring to "Error Messages" in item 5.

■ In case of mistake in operation

Press the **[Esc]** key to return the computer display to the main menu screen, then restart adjustment.

■ Exiting adjustment

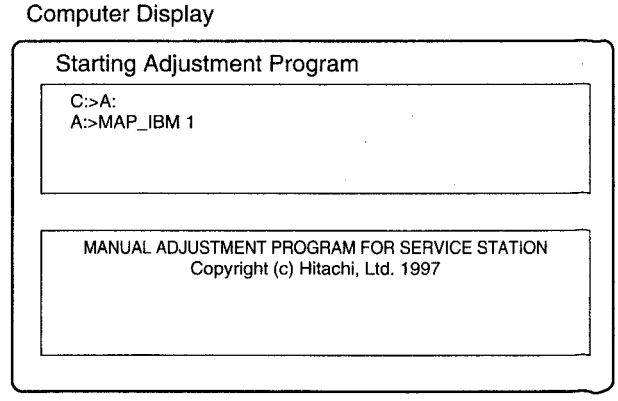
To exit adjustment, press the **[Esc]** key two or three times to return the computer display to the MS-DOS screen, and then turn off the MP-EG1A, test equipment and jigs.

4-1. Starting the Adjustment Program

See the computer manual for starting and operating the computer.

1) Start MS-DOS.
2) Insert the adjustment disk into the disk drive of computer.
3) Input **[a] [:]** following C:> on the MS-DOS screen, and then press the **[Enter]** key.
4) Following A:>, input **[M] [A] [P] [_]** (under-bar) **[I] [B] [M] [ ]** (space) **[1]**, and then press the **[Enter]** key. The adjustment program will start.

Computer Display



5) Input the number of the corresponding model name on the model select screen.

6) Make sure of the model name and press the **[Y]** key; the main menu screen will appear. Press the **[N]** key to return to the model select screen.

7) Press the **[A]-[E]** key to select the item to be adjusted.

Computer Display

Model Select Screen

```
**********************************************************************
********************** MODEL SELECT **********************
**********************************************************************

[ 1 ]          MP-EG1A



[ P ]          NEXT SELECTION
[ESC]          END
PLEASE SELECT THE TYPE OF THE SET.
PRESS [ 1 ] - [ 5 ] OR [ P ] OR [ESC]
```

Model Verification Screen

```
MP-EG1A is selected.
Are you sure ?  (Y/N)
```

Main Menu Screen

```
**********************************************************************
************ MANUAL ADJUSTMENT PROGRAM ************
**********************************************************************

[ A ]          DATA INITIALIZE
[ B ]          ELECTRIC VOLUME
[ C ]          ADJUSTMENT
[ D ]          SPOT NOISE
[ E ]          SETUP FOR LCD ADJUSTMENT
[ESC]          END

PLEASE SELECT [ A ] - [ E ] or [ESC]
```

4-2. Initial Setting (DATA INITIALIZE)

IMPORTANT: Be sure to execute initialization after replacing IC1502 (EEPROM) or the MAIN board. The initial setting need not be performed after other components are replaced.

1) Press the **[A]** key to select DATA INITIALIZE.
2) Make sure of the data write message and press the **[Y]** key. The initialization will be executed.
   Press the **[N]** key to restore the main menu screen.
3) If data has been written normally, FINISHED WRITING DATA will appear.
4) Press any key to restore the Main Menu Screen.

Computer Display

Main Menu Screen

```
**********************************************************************
************ MANUAL ADJUSTMENT PROGRAM ************
**********************************************************************

[ A ]          DATA INITIALIZE
[ B ]          ELECTRIC VOLUME
[ C ]          ADJUSTMENT
[ D ]          SPOT NOISE
[ E ]          SETUP FOR LCD ADJUSTMENT
[ESC]          END

PLEASE SELECT [ A ] - [ E ] or [ESC]
```

Message for Verifying Data Writing

```
<< DATA WRITING >>
START TO SEND DATA ?  (Y/N)
```

Data Being Written

```
PLEASE WAIT A MOMENT.
```

Writing Complete Screen

```
FINISHED WRITING DATA.
PRESS ANY KEY
```

4-3. Electronic Volume Adjustment (ELECTRIC VOLUME)

1) Press the **[B]** key to select ELECTRIC VOLUME.
2) Press the **[1]** or **[2]** key to select the item to be adjusted.

Main Menu Screen

```
**********************************************************************
************ MANUAL ADJUSTMENT PROGRAM ************
**********************************************************************

[ A ]          DATA INITIALIZE
[ B ]          ELECTRIC VOLUME
[ C ]          ADJUSTMENT
  :              :

PLEASE SELECT [ A ] - [ E ] or [ESC]
```

Electronic Volume Adjustment Screen

```
**********************************************************************
********************** ELECTRIC VOLUME **********************
**********************************************************************

[ 1 ]          CDS OFFSET
[ 2 ]          CDS SAMPLING PULSE

[ESC]          RETURN TO MAIN MENU
PLEASE SELECT [ 1 ], [ 2 ] or [ESC]
```

[1] CDS offset adjustment

1) Press the **[1]** key to select CDS Offset Adjustment.
2) When the adjustment is completed normally, FINISHED WRITING DATA and ADJUSTMENT COMPLETED will appear.
3) Press any key to restore the Electronic Volume Adjustment Screen.
4) **Turn the MP-EG1A off and then on again.**

Electronic Volume Adjustment Screen

```
**********************************************************
********************* ELECTRIC VOLUME ********************
**********************************************************
[1]          CDS OFFSET
[2]          CDS SAMPLING PULSE

[ESC]        RETURN TO MAIN MENU
PLEASE SELECT [ 1 ], [ 2 ] or [ESC]
```

Screen for Adjustment Being Executed

```
<< ADJUSTMENT OF CDS OFFSET >>

PLEASE WAIT AROUND 50 SEC.
```

Adjustment Complete Screen

```
FINISHED WRITING DATA.
ADJUSTMENT COMPLETED.

PRESS ANY KEY
```

[2] Sampling pulse adjustment

Object: To suppress noise in the CCD sensor output signal and maximize the signal level.

Fault due to incomplete adjustment:
Cross beat or horizontal noise will appear.

Setup: Turn the MP-EG1A on and wait for approx. 2 minutes until the internal circuits are stabilized, then start adjustment.

1) Press the **[2]** key to select Sampling Pulse Adjustment.
2) When the adjustment is completed normally, FINISHED WRITING DATA and ADJUSTMENT COMPLETED will appear.
3) Press any key to restore the Electronic Volume Adjustment Screen.
4) Press the **[Esc]** key to restore the Main Menu Screen.

Electronic Volume Adjustment Screen

```
**********************************************************
********************* ELECTRIC VOLUME ********************
**********************************************************
[1]          CDS OFFSET
[2]          CDS SAMPLING PULSE

[ESC]        RETURN TO MAIN MENU
PLEASE SELECT [ 1 ], [ 2 ] or [ESC]
```

Screen for Adjustment Being Executed

```
<< ADJUSTMENT OF CDS SAMPLING PULSE >>

NOW ADJUSTING ...
```

Adjustment Complete Screen

```
FINISHED WRITING DATA.
ADJUSTMENT COMPLETED.

PRESS ANY KEY
```

4-4. Picture Adjustment (ADJUSTMENT)

IMPORTANT: Perform backfocus adjustment if necessary before starting picture adjustment. If picture adjustment is performed while backfocus drifts conspicuously or is in unsharp status, it could result in incomplete adjustment. (See page 1-12 for backfocus adjustment.)

1) Press the **[C]** key to select ADJUSTMENT.
2) Press the **[1] - [6]** key to select the item to be adjusted.

Main Menu Screen

```
**********************************************************
********** MANUAL ADJUSTMENT PROGRAM **********
**********************************************************
[A]          DATA INITIALIZE
[B]          ELECTRIC VOLUME
[C]          ADJUSTMENT
[D]          SPOT NOISE
:            :
PLEASE SELECT [ A ] - [ E ] or [ESC]
```

Picture Adjustment Screen

```
**********************************************************
********************* ADJUSTMENT *********************
**********************************************************
[1]          AUTO IRIS CONTROL
[2]          KNEE
[3]          SHUTTER
[4]          MATRIX
[5]          WHITE BALANCE
[6]          CHROMA GAIN
[ESC]        RETURN TO MAIN MENU

PLEASE SELECT [ 1 ] - [ 6 ] OR [ESC]
```

[1] Iris adjustment

Object: To set the iris control data.

Fault due to incomplete adjustment: The picture is too bright or too dark.

Setup: Remove the chart from the light box, set the zoom switch to the telephoto end, and point the camera at the light box so as to fill the screen with its white section. (The distance from the MP-EG1A lens surface to the light box must be approx. 20 cm.)

1) Press the **[1]** key to select AUTO IRIS CONTROL.
2) When the iris open & close adjustment is completed, ADJUSTMENT COMPLETED will appear.
3) Press any key to display the iris adjustment screen.

4) When the iris adjustment is completed, ADJUSTMENT FINISHED will appear.
5) Press any key to display the Hallcurve adjustment screen.

6) When the Hallcurve adjustment is completed, ADJUSTMENT COMPLETED will appear.
7) Press any key to restore the Picture Adjustment Screen.
8) **Turn the MP-EG1A off and then on again.**

■ After the iris adjustment is completed, return both the distance from the MP-EG1A lens surface to the light box and the zoom position to the original states.

Picture Adjustment Screen

```
**********  ADJUSTMENT  **********
[1]  AUTO IRIS CONTROL
[2]  KNEE
:    :
[ESC]  RETURN TO MAIN MENU

PLEASE SELECT [ 1 ] - [ 6 ] OR [ESC]
```

Screen for Iris Open & Close Adjustment

```
<< ADJUSTMENT OF IRIS OPEN & CLOSE >>
PLEASE WAIT AROUND 10 SEC.
```

Iris Open & Close Adjustment Complete Screen

```
FINISHED WRITING DATA.
ADJUSTMENT COMPLETED.

PRESS ANY KEY
```

Screen for Iris Adjustment Being Executed

```
<< ADJUSTMENT OF IRIS >>
PLEASE WAIT AROUND 20 SEC.
```

Iris Adjustment Complete Screen

```
ROUGH ADJUSTMENT : XX TIMES
FINE ADJUSTMENT  : XX TIMES
ADJUSTMENT FINISHED

PRESS ANY KEY
```

This may not be displayed.

Screen for Hallcurve Adjustment Being Executed

```
<<ADJUSTMENT OF HALLCURVE>>
PLEASE WAIT AROUND 30 SEC.
        *
ADJUSTMENT POINT 0 1 2 3 4 5 6 7 8 9 A B C
```

The mark lights in sequence.

Hallcurve Adjustment Complete Screen

```
FINISHED WRITING DATA.
ADJUSTMENT COMPLETED.

PRESS ANY KEY
```

[2] Knee adjustment

Object: To set the knee level of the high level signal.

Fault due to incomplete adjustment: Color of highly illuminated object is too light or too dense.

Setup: 1) Connect an oscilloscope to the AV output cable (video output).
2) Point the camera at the grayscale chart.

1) Press the **[2]** key to select KNEE.
2) Follow the instructions on the screen, and if the setup is finished, press the **[Enter]** key to start adjustment.

[Continued on next page]

Picture Adjustment Screen

```
**********  ADJUSTMENT  **********
[1]  AUTO IRIS CONTROL
[2]  KNEE
:    :
[ESC]  RETURN TO MAIN MENU

PLEASE SELECT [ 1 ] - [ 6 ] OR [ESC]
```

Knee Adjustment Step 1 Screen

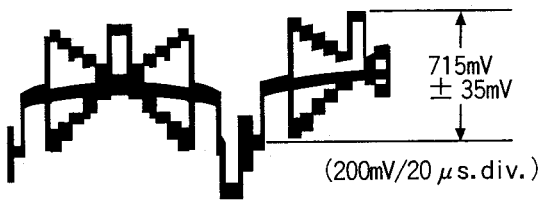
```
<< KNEE ADJUSTMENT >> STEP1

* THIS ADJUSTMENT ONLY NEEDED AFTER REPLACING IC1501 OR IC1502.
* THE [1] IRIS CONTROL ADJUSTMENT SHOULD HAVE JUST BEEN COMPLETED.

PLEASE POINT AT THE CHART AND PRESS THE FOLLOWING KEY.

RETURN TO MENU. [ ESC ]
GO TO NEXT STEP. [ ENTER ]
```

Screen for Knee Adjustment Step 1 Being Executed

```
<< KNEE ADJUSTMENT >> STEP1
PLEASE WAIT A MOMENT.
```

Continued on next page

3) Make sure that knee adjustment step 2 screen appears.
4) Check the luminance level of the video signal waveform on the oscilloscope, and press the **[U]** and **[D]** keys on the computer to set the level to 715(±35) mV.
   - With coarse adjustment, use the **[U]** and **[D]** keys to bring the level near 715 mV, and then with precise adjustment, holding the **[Ctrl]** key, press the **[U]** and **[D]** keys to set the level to 715(±35) mV.
   - **Take note of the luminance level, since it is used in knee adjustment step 3.**



5) Press the **[Enter]** key to move to knee adjustment step 3 screen.
6) Make sure that knee adjustment step 3 screen appears.
7) Check the luminance level of the video signal waveform on the oscilloscope, and press the **[U]** and **[D]** keys on the computer to set the level to that noted in step 2.
   - Use the **[U]** and **[D]** keys to coarsely adjust the level, and then, holding the **[Ctrl]** key, press the **[U]** and **[D]** keys to precisely adjust.
   - Press the **[C]** key to review the waveform obtained in step 2.
8) Press the **[Enter]** key. When the adjustment has been completed normally, ADJUSTMENT COMPLETED will appear.
9) Press any key to restore the Picture Adjustment Screen.

Knee Adjustment Step 2 Screen

```
<< KNEE ADJUSTMENT >> STEP2

SET LUMINANCE LEVEL TO 100(+/-5)IRE OR 715(+/-35)mV

        ROUGH ADJUSTMENT
        [ U ]          UP
        [ D ]          DOWN

        FINE ADJUSTMENT
        [ CTRL ] + [ U ]   UP
        [ CTRL ] + [ D ]   DOWN

        [ ENTER ]      DECISION
```

Knee Adjustment Step 3 Screen

```
<< KNEE ADJUSTMENT >> STEP3

ADJUST THE LUMINANCE LEVEL TO MATCH THE LEVEL FROM STEP2
        ROUGH ADJUSTMENT
        [ U ]          UP
        [ D ]          DOWN

        FINE ADJUSTMENT
        [ CTRL ] + [ U ]   UP
        [ CTRL ] + [ D ]   DOWN

        [ C ]  REREAD THE LEVEL FROM STEP2
        [ ENTER ]      DECISION
```

Screen for Verifying Step 2 Value

```
<< KNEE ADJUSTMENT >> STEP3

WAVEFORM ON OSCILLOSCOPE IS NOW DISPLAYING ADJUSTED AT STEP2.
(PRESS [C] TO RETURN TO STEP3 MENU)
```

Knee Adjustment Complete Screen

```
<< KNEE ADJUSTMENT >> STEP3
ADJUSTMENT COMPLETED.

PRESS ANY KEY
```

[3] Shutter adjustment

1) Press the **[3]** key to select SHUTTER.
2) Press the **[A]** or **[B]** key to select the item to be adjusted.

[3-A] Shutter adjustment No. 1

Object: To measure the shutter closing time and store the still picture exposure control data in memory.

Fault due to incomplete adjustment: The still picture is too bright or too dark.

Setup: 1) Point the camera at the light box without chart inserted.
2) Fit a C12 filter over the lens of the MP-EG1A.(Hold the filter with your hand until the adjustment is completed.)

1) Press the **[A]** key to select SHUTTER ADJUSTMENT No. 1.
2) The screen for the light amount being checked will appear. If the light amount is the specified one, "LIGHT CONDITION IS GOOD" will appear.
3) Press any key. The adjustment will be executed.
4) When the adjustment is completed, the Shutter Adjustment Screen will be restored.

Picture Adjustment

```
**********************************************************
********************* ADJUSTMENT *********************
**********************************************************
        [ 1 ]      AUTO IRIS CONTROL
        [ 2 ]      KNEE
        [ 3 ]      SHUTTER
        [ 4 ]      MATRIX
          :          :
        [ESC]      RETURN TO MAIN MENU

PLEASE SELECT [ 1 ] - [ 6 ] OR [ESC]
```

Shutter Adjustment Screen

```
**********************************************************
****************** SHUTTER ADJUSTMENT ********************
**********************************************************
        [ A ]  SHUTTER ADJUSTMENT No.1
        [ B ]  SHUTTER ADJUSTMENT No.2

        [ESC]  END
PLEASE SELECT [ A ] , [ B ] or [ESC]
```

Screen for Light Amount Being Verified

```
SHUTTER ADJUSTMENT No.1
NOW CHECKING LIGHT CONDITION.
```

Continued on next page

Light Amount OK Screen

```
LIGHT CONDITION IS GOOD.
PRESS ANY KEY
```

Screen for Being Adjusted

```
ADJUSTING NOW.
PLEASE WAIT A MOMENT.
```

[3-B] Shutter adjustment No. 2

Object: To measure the shutter closing time and store the still picture exposure control data in memory.

Fault due to incomplete adjustment: The still picture is too bright or too dark.

Setup: Point the camera at the bulb-type fluorescent lamp (equivalent to 100 W). (The distance from the MP-EG1A lens surface to the lamp must be approx. 10 cm.)

1) Press the **[B]** key to select SHUTTER ADJUSTMENT No. 2.
2) The screen for the light amount being checked will appear. If the light amount is the specified one, "LIGHT CONDITION IS GOOD" will appear.
3) Press any key. The adjustment will be executed.
4) When the adjustment is completed, the Shutter Adjustment Screen will be restored.
5) Press the **[Esc]** key to restore the Picture Adjustment Screen.
6) **Turn the MP-EG1A off and then on again.**

■ After the shutter adjustment is completed, return both the distance from the MP-EG1A lens surface to the light box and the zoom position to the original states.

Shutter Adjustment Screen

```
********** SHUTTER ADJUSTMENT **********
[ A ]  SHUTTER ADJUSTMENT No.1
[ B ]  SHUTTER ADJUSTMENT No.2

[ESC]  END
PLEASE SELECT [ A ], [ B ] or [ESC]
```

Screen for Light Amount Being Checked

```
SHUTTER ADJUSTMENT No.2
NOW CHECKING LIGHT CONDITION.
```

Light Amount OK Screen

```
LIGHT CONDITION IS GOOD.
PRESS ANY KEY
```

Screen for Being Adjusted

```
ADJUSTING NOW.
PLEASE WAIT A MOMENT.
```

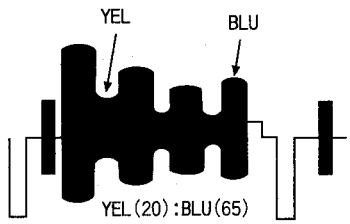
[4] Matrix adjustment

Object: To correct variations in the chroma level.

Fault due to incomplete adjustment: Color reproduction deteriorates.

Setup: 1) Connect an oscilloscope to the AV output cable (video output).
2) Point the camera at the color bar chart.

1) Press the **[4]** key to select MATRIX.
2) Make sure that the matrix adjustment screen appears.
3) Check the video signal waveform on the oscilloscope, and press the **[U]** and **[D]** keys on the computer to adjust the waveform level.
   - Press the **[D]** key to minimize the yellow level.
   - Press the **[U]** key to set the ratio between the yellow and blue levels near 20:65, and then, holding the **[Ctrl]** key, press the **[U]** and **[D]** keys to precisely adjust the ratio to 20:65.



(100mV/10 μs.div.)

4) Press the **[Enter]** key to write the data to the EEPROM.
5) When the adjustment is completed, ADJUSTMENT COMPLETED will appear.
6) Press any key to restore the Picture Adjustment Screen.

Picture Adjustment Screen

```
********** ADJUSTMENT **********
:                :
[ 3 ]   SHUTTER
[ 4 ]   MATRIX
[ 5 ]   WHITE BALANCE
[ 6 ]   CHROMA GAIN
[ESC]   RETURN TO MAIN MENU

PLEASE SELECT [ 1 ] - [ 6 ] OR [ESC]
```

Matrix Adjustment Screen

```
<< ADJUSTMENT OF MATRIX >>

ROUGH ADJUSTMENT
[ U ]          UP
[ D ]          DOWN

FINE ADJUSTMENT
[ CTRL ] + [ U ]   UP
[ CTRL ] + [ D ]   DOWN

[ ENTER ]   SAVE & RETURN TO MENU
[ ESC ]     QUIT
```

Matrix Adjustment Complete Screen

```
<< ADJUSTMENT OF MATRIX >>

ADJUSTMENT COMPLETED.

PRESS ANY KEY
```

[5] White balance adjustment

Object: To set the white balance under the color temperature which is the reference for auto white balance.

Fault due to incomplete adjustment:

1) The colors of the subject and its edges are different.
2) A white object is not recorded white.

Setup: 1) Point the camera at the grayscale chart.
2) Fit a C12 filter over the lens of the MP-EG1A.(Hold the filter with your hand until the adjustment is completed.)

1) Press the **[5]** key to select WHITE BALANCE.
2) Input **[0** (zero)**]** **[B]** in the R-B offset data input section on the white balance adjustment screen, and press the **[Enter]** key.
3) Input **[1]** **[3]** in the Mg-G offset data input section on the white balance adjustment screen, and press the **[Enter]** key.
4) When the adjustment is completed, ADJUSTMENT COMPLETED will appear.
5) Press any key to restore the Picture Adjustment Screen.

Picture Adjustment Screen

```
**********************************************************
********** ADJUSTMENT **********
**********************************************************

:                    :
[ 4 ]    MATRIX
[ 5 ]    WHITE BALANCE
[ 6 ]    CHROMA GAIN
[ESC]    RETURN TO MAIN MENU

PLEASE SELECT [ 1 ] - [ 6 ] OR [ESC]
```

Screen for Being Adjusted

```
<< WHITE BALANCE ADJUSTMENT >>
INPUT DATA OF OFFSET FOR R-B -->0B
```

Input **[0 (zero)]** **[B]** and press **[Enter]**.

```
<< WHITE BALANCE ADJUSTMENT >>
INPUT DATA OF OFFSET FOR Mg-G -->13
```

Input **[1]** **[3]** and press **[Enter]**

Screen for Data Being Written

```
<< WHITE BALANCE ADJUSTMENT >>
PLEASE WAIT A MOMENT.
```

White Balance Adjustment Complete Screen

```
<< WHITE BALANCE ADJUSTMENT >>
ADJUSTMENT COMPLETED.

PRESS ANY KEY
```

[6] Chroma gain adjustment

Object: To set the color saturation under the reference chroma signal.

Fault due to incomplete adjustment: The color of image is denser or lighter than that of subject.

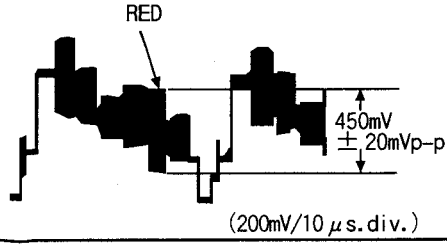
Setup:

1) Connect an oscilloscope or a vectorscope to the AV output cable (video output).
2) Point the camera at the color bar chart.
3) Fit a C12 filter over the lens of the MP-EG1A.(Hold the filter with your hand until the adjustment is completed.)

1) Press the **[6]** key to select CHROMA GAIN.
2) Make sure that the chroma gain adjustment screen has been displayed.

[Adjustment using oscilloscope]

3) Check the video signal waveform on the oscilloscope, and press the **[U]** and **[D]** keys on the computer to adjust the red level to 450±20 mVp-p.
   - With coarse adjustment, use the **[U]** and **[D]** keys to bring the level near 450 mV, and then with precise adjustment, holding the **[Ctrl]** key, press the **[U]** and **[D]** keys to set the level to 450±20 mVp-p.



Picture Adjustment Screen

```
**********************************************************
********** ADJUSTMENT **********
**********************************************************

:                    :
[ 4 ]    MATRIX
[ 5 ]    WHITE BALANCE
[ 6 ]    CHROMA GAIN
[ESC]    RETURN TO MAIN MENU

PLEASE SELECT [ 1 ] - [ 6 ] OR [ESC]
```

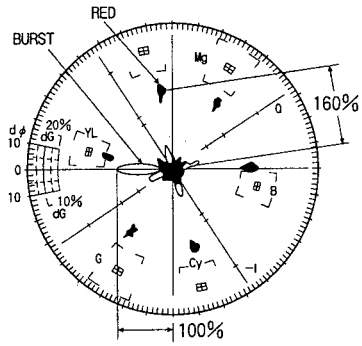
Chroma Gain Adjustment Screen

```
<< CHROMA GAIN >>

ROUGH ADJUSTMENT
[ U ]          UP
[ D ]          DOWN

FINE ADJUSTMENT
[ CTRL ] + [ U ]   UP
[ CTRL ] + [ D ]   DOWN

[ ENTER ]   SAVE & RETURN TO MENU
[ ESC ]     QUIT
```

Continued on next page

[Adjustment using vectorscope]

3) Check the signals on the vectorscope, and use the **[U]** and **[D]** keys on the computer to adjust the red vector level to 160±5% with respect to the burst level (100%).
   - With coarse adjustment, use the **[U]** and **[D]** keys to bring the level near the specification, and then with precise adjustment, holding the **[Ctrl]** key, press the **[U]** and **[D]** keys to set the level at 160±5%.



4) Press the **[Enter]** key to write the data to the EEPROM.
5) When the adjustment is completed, ADJUSTMENT COMPLETED will appear.
6) Press any key to restore the Picture Control Adjustment Screen.
7) Press the **[Esc]** key to restore the Main Menu Screen.

Chroma Gain Adjustment Screen

```
<< CHROMA GAIN >>

ROUGH ADJUSTMENT
[ U ]          UP
[ D ]          DOWN

FINE ADJUSTMENT
[ CTRL ] + [ U ]   UP
[ CTRL ] + [ D ]   DOWN

[ ENTER ]   SAVE & RETURN TO MENU
[ ESC ]     QUIT
```

Screen for Data Being Written

```
FINISHED WRITING DATA.
```

Chroma Gain Adjustment Complete Screen

```
ADJUSTMENT COMPLETED.

PRESS ANY KEY
```

4-5. Spot Noise Adjustment

Subsidiary Information:

■ What is spot noise?
Spot Noise refers to white bright dot that is visible when the lens is covered due to pixel defect.

■ Checking before starting adjustment
Perform this adjustment with all products in which spot noise might occur. Before starting adjustment, cover the MP-EG1A lens surface with black paper, etc. and check spot noise on the monitor screen.

1) Cover the lens surface with black paper, etc.
2) Press the **[D]** key to select SPOT NOISE.
3) The screen for spot noise being detected will appear. Follow the instructions on the screen thereafter.

[Spot noise cannot be detected or there is no spot noise]

4) If "CANNOT FIND THE SPOT NOISE" appears, press any key to restore the Main Menu Screen.

[When spot noise is detected]

4) If the number of detected spot noise appears such as "X SPOT NOISE FOUND", press any key to proceed with the next screen.

Main Menu Screen

```
**********************************************************
********** MANUAL ADJUSTMENT PROGRAM **********
**********************************************************

[ E ]      SETUP FOR LCD ADJUSTMENT
[ESC]      END

PLEASE SELECT [ A ] - [ E ] or [ESC]
```

Screen for Spot Noise Being Detected

```
**********************************************************
********** SPOT NOISE COMPENSATE **********
**********************************************************

SEARCHING SPOT NOISE, NOW.

PLEASE WAIT A MOMENT.
```

Screen when no spot noise is found

```
**********************************************************
********** SPOT NOISE COMPENSATE **********
**********************************************************

CAN NOT FIND THE SPOT NOISE !

PRESS ANY KEY
```

Screen when spot noise is detected

```
**********************************************************
********** SPOT NOISE COMPENSATE **********
**********************************************************

(Displays the number of detected spot noise)  X SPOT NOISE FOUND

PRESS ANY KEY
```

[Press any key]

Continued on next page.

5) Make sure that the cursor blinks at the spot noise section on the monitor screen.
If it can be confirmed: Press the **[Y]** key. -> Proceed with step 6.
If it cannot be confirmed: Press the **[N]** key. -> Proceed with step 8.

6) Observe the section where the cursor is blinking on the monitor screen, and press the **[space]** key until spot noise disappears completely.
7) Make sure that spot noise has disappeared, and then press the **[Enter]** key.

8) Press any key and proceed with the next screen.

9) Repeat steps 5-8 for each case of detected spot noise.

10) When the compensation of all spot noise has been completed, "COMPLETE." will appear.
11) Press any key to restore the Main Menu Screen.

```
**********
********** SPOT NOISE COMPENSATE **********
**********

CAN YOU SEE THE BLINKING CURSOR ? (Y/N)
```

Press the [Y] key if it can be confirmed.
Press the [N] key if it cannot be confirmed.

Screen when [Y] is pressed.

```
**********
********** SPOT NOISE COMPENSATE **********
**********

LOOK AT THE CURSOR POINT.

WHILE YOU CAN SEE THE SPOT NOISE, PRESS SPACE KEY.

IF THE SPOT NOISE CLEARS, THEN PRESS ENTER KEY.
```

Press the [space] key until spot noise disappears.
Press the [Enter] key when spot noise has disappeared.

Screen when [N] is pressed.

```
**********
********** SPOT NOISE COMPENSATE **********
**********

THIS SPOT NOISE IS IN THE BLANKING AREA OF TV.

PRESS ANY KEY.
```

Screen when compensation of spot noise is completed.

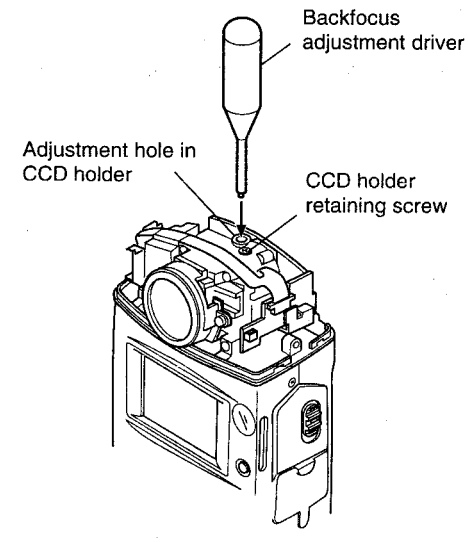
```
**********
********** SPOT NOISE COMPENSATE **********
**********

COMPLETE.

PRESS ANY KEY.
```

4-6. Backfocus Adjustment

Object: To set the center of the pan-focus range of the lens to the specification, 3 m.

Setup: 1) Set the distance from the MP-EG1A lens surface to the chart to 3.0 m ± 5 cm.
2) Point the camera at the backfocus chart (illuminate the chart with 200-300 lux).
3) Set the zoom switch to wide-angle end and point the camera so as to fill the monitor screen.

1) Remove the case from the camera block.
2) Loosen the screw holding the CCD holder at the top of the lens assembly.
3) Insert the backfocus adjustment driver into the adjustment hole in the CCD holder, and adjust it so that optimum focus is on the monitor screen.
4) Tighten the screw holding the CCD holder with the specified torque 1.5kg.cm.
5) Set the zoom switch to the telephoto end, and make sure the subject is in focus. If it is out of focus, restart adjustment from step 1).



4-7. LCD Adjustment

Setup for adjustment:

1) Press the **[E]** key to select SETUP FOR LCD ADJUSTMENT.
2) The screen for verifying switching to the LCD adjustment mode will appear.
3) Press the **[Enter]** key to execute. Pressing the **[Esc]** key will stop switching to the LCD adjustment mode and return the display to the main menu screen.
4) Perform LCD adjustment with the main menu displayed.

Main Menu Screen

```
**********************************************************
********** MANUAL ADJUSTMENT PROGRAM **********
**********************************************************
          :                    :
        [ D ]          SPOT NOISE
        [ E ]          SETUP FOR LCD ADJUSTMENT
        [ESC]          END

PLEASE SELECT [ A ] - [ E ] or [ESC]
```

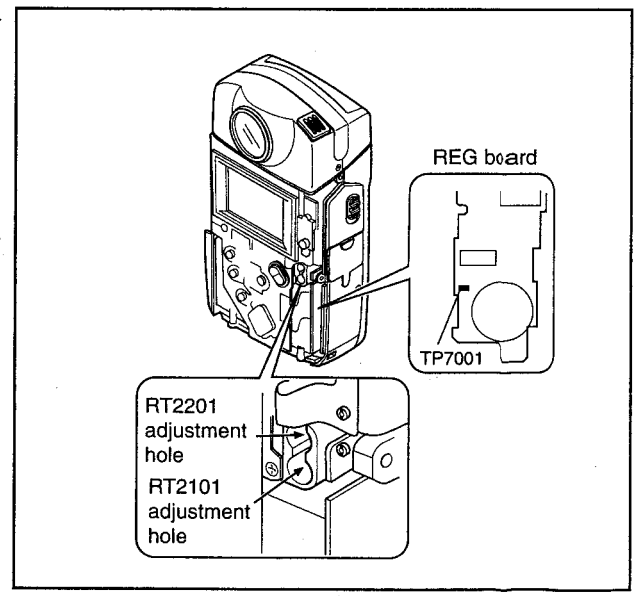
Screen for Verifying

```
<< LCD ADJUSTMENT MODE >>
SETUP FOR LCD ADJUSTMENT MODE.

[ ENTER ] EXECUTE
[ ESC ]   QUIT

PLEASE SELECT [ENTER] or [ESC]
```

[1] PLL adjustment

Setup: 1)Remove the front cover from the MP-EG1A.
2)Disconnect the DSP AV output jig and connect the AV input cable to the AV output jack (with no signal input).
3)Connect a frequency counter to TP7001 on the REG board. (Ground the frequency counter to the GND of power supply.)

1) Insert the MP-HD260A hard disk into the MP-EG1A.
2) Operate the MP-EG1A so the moving picture record mode indicator lights and records no signal.
3) Adjust RT2201 on the LCD board so the frequency counter reads 15.73±0.1 kHz.
4) Turn the MP-EG1A off to release the LCD adjustment mode.



[2] LCD voltage adjustment

1) Disconnect the AV input cable.
2) Insert the MP-HD260A hard disk into the MP-EG1A.
3) Operate the MP-EG1A so the moving picture record mode indicator lights and starts recording.
4) Pan the camera block slowly.
5) Make sure the vertical stripes on the MP-EG1A LCD monitor are visible.
6) Adjust RT2101 on the LCD board slowly to minimize the vertical stripes on the LCD monitor.

Note: If adjustment is incomplete, vertical stripes will be conspicuous on the LCD monitor and the contrast will also be low.

5. Error Messages

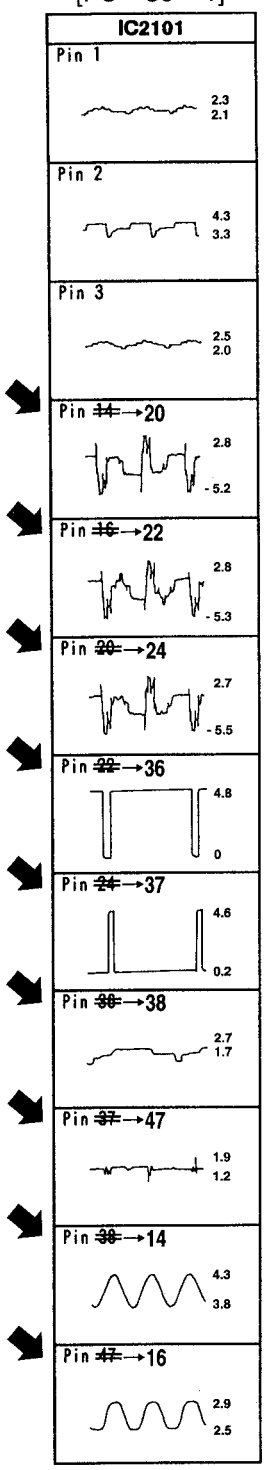
This section shows the error messages that appear on the computer display during adjustment and the procedure for troubleshooting them. If errors have occurred, troubleshoot the defects, and then press any key and restart adjustment work from the point where the error occurred.

Error message	Cause/Troubleshooting
ERROR OCCURRED. IRIS TROUBLE.	Troubleshooting: 1) Check whether MP-EG1A turns on or not. 2) Check the values of the iris drive circuit. 3) Check defective soldering, damage to pattern, etc. in the above circuit. 4) Check the iris block, and replace it if necessary.
ERROR OCCURRED ON dax ADJUSTMENT.	Troubleshooting: 1) Check the values of the Hall amp circuit. 2) Check defective soldering, damage to pattern, etc. in the above circuit.
D RANGE OVER ERROR ON dax ADJUSTMENT	Troubleshooting: 1) Check the values of the Hall amp circuit. 2) Check defective soldering, damage to pattern, etc. in the above circuit.
ERROR OCCURRED ON da0 and da1 ADJUSTMENT	Troubleshooting: 1) Check the values of the Hall amp and its peripheral circuits. 2) Check defective soldering, damage to pattern, etc. in the above circuits.
CAN NOT OPEN THE DATA FILE.	Cause: 1) The adjustment program (file) cannot be found. 2) The adjustment program (file) does not start. Troubleshooting: Check the adjustment disk, and replace it if necessary.
ERROR OCCURRED ON CDUTY ADJUSTMENT	Troubleshooting: 1) Check the values of the iris drive circuit. 2) Check defective soldering, damage to pattern, etc. in the above circuit.
ERROR OCCURRED ON FDET ADJUSTMENT	Troubleshooting: 1) Check the values of the Hall amp circuit. 2) Check defective soldering, damage to pattern, etc. in the above circuit. 3) Turn the MP-EG1A on again and re-adjust.
ERROR OCCURRED. ZOOM DOES NOT WORK.	Troubleshooting: Turn the MP-EG1A on again and re-adjust.
TOO BRIGHT	Cause: The subject is too bright. Troubleshooting: Move the camera farther away from the light box.
TOO DARK	Cause: The subject is too dark. Troubleshooting: 1) Check the fluorescent lamp of the light box. 2) Move the camera closer to the light box.
D RANGE OVER ERROR ON HALL AMP. IRIS CANNOT OPEN ANY MORE.	Cause: The subject is too dark. Troubleshooting: 1) Check the fluorescent lamp of the light box. 2) Move the camera closer to the light box. 3) Check the values of the Hall amp circuit. 4) Check defective soldering, damage to pattern, etc. in the above circuit. 5) Turn the MP-EG1A on again and re-adjust.
SATURATION ERROR TOO BRIGHT.	Cause: The subject is too bright. Troubleshooting: Move the camera farther away from the light box.
CAN'T ADJUST WHITE BALANCE. PLEASE RETRY AFTER CHECK ADJUSTMENT CONDITION.	Cause: The subject is too bright or too dark. Troubleshooting: 1) Check the fluorescent lamp of the light box. 2) Move the camera farther away from the light box or closer to it. 3) Turn the MP-EG1A on again and re-adjust.
ERROR SPOT NOISE COMPENSATION IS DISABLED BY INITIAL DATA. PLEASE CHECK THE EEPROM.	Causes: 1) Spot noise compensation has stopped because of the data in the EEPROM. 2) The data in the EEPROM has been destroyed (the EEPROM must be initialized). Troubleshooting: 1) Turn the MP-EG1A on again and re-adjust. 2) Check the EEPROM and replace it if necessary.
ERROR THRESHOLD DATA ERROR. PLEASE CHECK THE EEPROM.	Cause: The data in the EEPROM has been destroyed (the EEPROM must be initialized). Troubleshooting: 1) Turn the MP-EG1A on again and re-adjust. 2) Check the EEPROM and replace it if necessary.
ERROR THE SPOT NOISE IS TOO MANY. CAN NOT COMPENSATE ANY MORE.	Cause: The amount of spot noise that can be compensated for has reached the limit. Troubleshooting: 1) Turn the MP-EG1A on again and re-adjust. 2) Check the CCD sensor, and replace it if necessary.

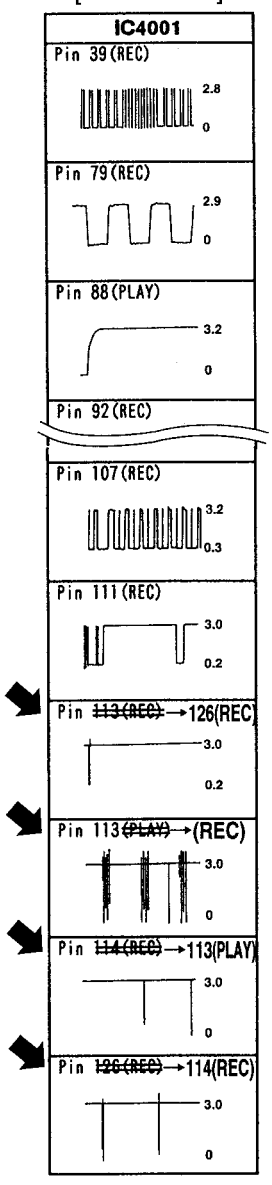
Correction of Voltage chart

Some IC pin numbers were mistaken in the voltage charts on pages 5-30-1 to 5-31 of the MP-EG1A service manual (No.6708E). Please read the pin numbers as follows.

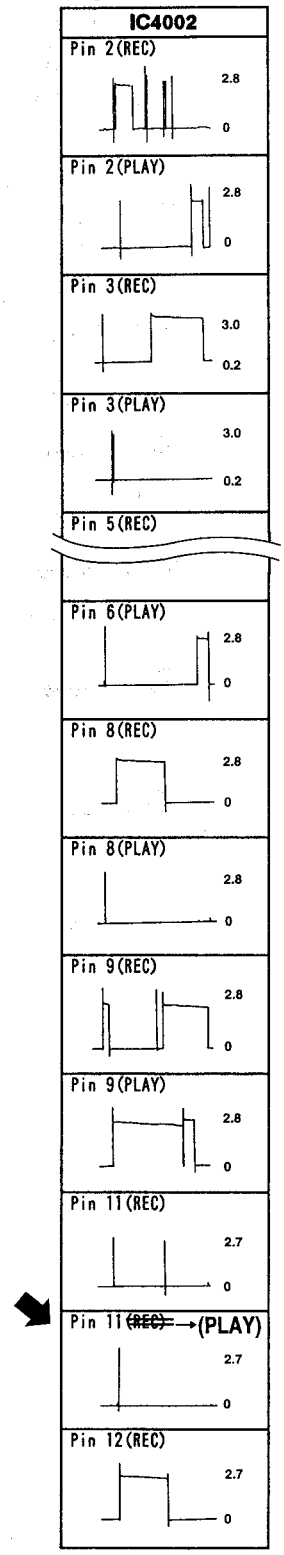
[P5 – 30 – 1]



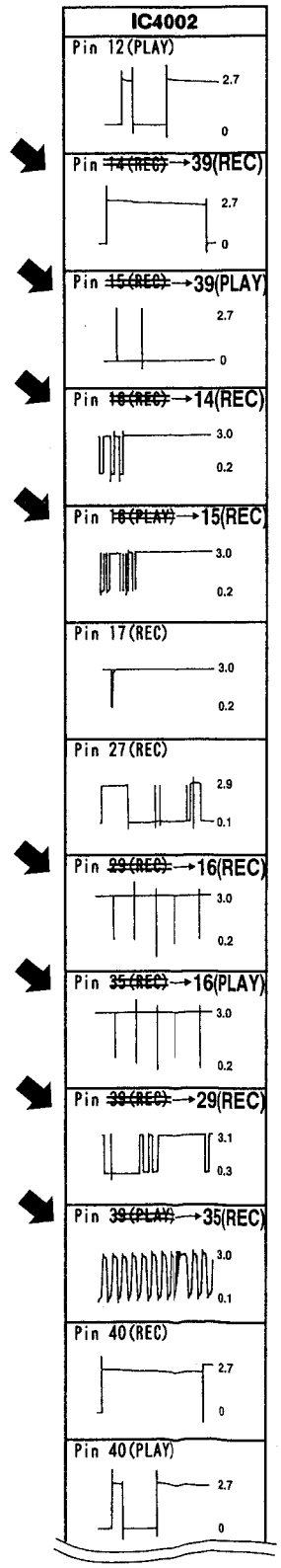
[P5 – 30 – 3]



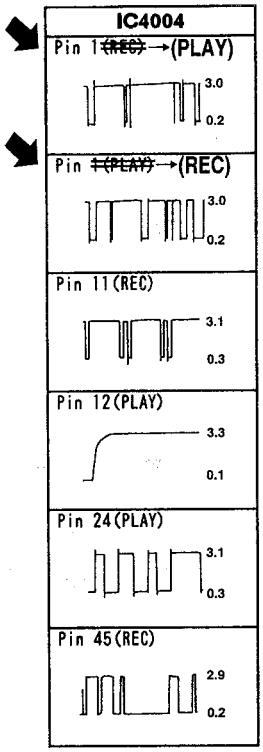
[P5 – 30 – 4]



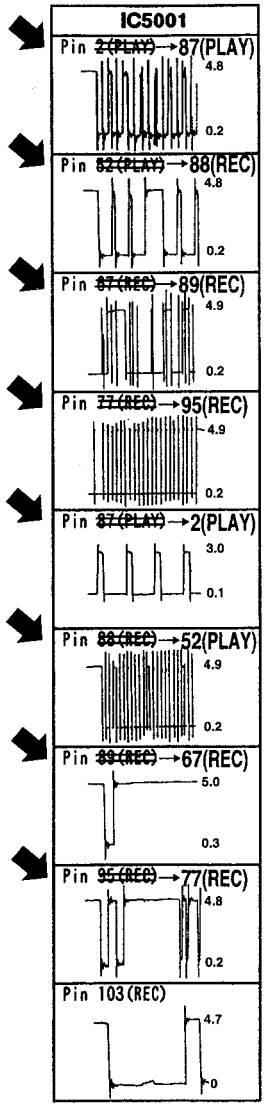
[P5 – 30 – 4]



[P5 – 31]


IC4004
Pin 1 ~~(REC)~~ →(PLAY)
3.0
0.2
Pin ~~1(PLAY)~~ →(REC)
3.0
0.2
Pin 11(REC)
3.1
0.3
Pin 12(PLAY)
3.3
0.1
Pin 24(PLAY)
3.1
0.3
Pin 45(REC)
2.9
0.2

[P5 – 31]


IC5001
Pin ~~2(PLAY)~~ →87(PLAY)
4.8
0.2
Pin ~~52(PLAY)~~ →88(REC)
4.8
0.2
Pin ~~87(REC)~~ →89(REC)
4.9
0.2
Pin ~~77(REC)~~ →95(REC)
4.9
0.2
Pin ~~87(PLAY)~~ →2(PLAY)
3.0
0.1
Pin ~~88(REC)~~ →52(PLAY)
4.9
0.2
Pin ~~89(REC)~~ →67(REC)
5.0
0.3
Pin ~~95(REC)~~ →77(REC)
4.8
0.2
Pin 103(REC)
4.7
0

HITACHI

MP-EG1A TK No.6708E-1 Image & Information Media Systems Division, Tokai

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Printed in Japan (HI)